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Nitrogen Exports Drop During First Half of This Year

Government Report Says Phosphate and Potash Business Remains Good

WASHINGTON—Export volume of nitrogenous fertilizers for the first half of 1960 was disappointing, according to a report just issued by the U.S. Department of Commerce, Business and Defense Services. Exports in other areas, however, were not so bad, the report says.

During the first half of 1960, the report says, exports of both ammonium sulfate and urea were less than half the tonnage in the 1959 period. "Of the nitrogenous materials, only anhydrous and aqua ammonia exports showed significant improvement.

"Ammonium sulfate output has declined, producers' stocks have accumulated, and imports have increased. Apparently, increasing competition from foreign suppliers is contributing to the declining movement in both the export and domestic markets. Although Canada remains the major supplier of imported ammonium sulfate, increasing quantities also have

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New Sulphur Plant Put in Production

NEW ORLEANS — Freeport Sulphur Co. announced on Nov. 28 that it has placed in operation a new sulphur mine at Lake Pelto on the marshland shore of the Gulf about 60 miles southwest of New Orleans.

To mine the deposit, the company is using its unique barge-mounted plant used originally a few miles to the north at the now-depleted Bay Ste. Elaine deposit.

Lake Pelto is the second mine which Freeport has opened this year. In June the company began commercial production at its major Grand Isle project, the world's first offshore sulphur mine, located seven miles out in the Gulf.

Round Table Panels Discuss Basic Goods

WASHINGTON—Panel discussions covering uniformity of raw materials were featured at the Fertilizer Industry Round Table at the Mayflower Hotel here Nov. 2-4. The program afforded opportunity for fertilizer manufacturers to voice their suggestions and criticisms concerning raw materials, and time was likewise given for raw material suppliers to present their side of the story.

Producers of nitrogen, phosphate and potash were on the program to give the audience of nearly 500 a picture of their operations and to offer closer cooperation with the manufacturing trade.

Potash Panel

Participating on the panel of potash producers were representatives of six firms. Dr. Edwin Kapusta, U.S. Potash Co. Division of United States Borax & Chemical Corp., New York, was moderator of the panel which comprised the following: N. T. Wendt, American Potash & Chemical Co.; D. J. Bourne, Duval Sulphur & Potash Co.; Bob Heck, International Minerals & Chemical Corp.; Dean R. Gidney, Potash Co. of America; and Van Rogers, Southwest Potash Co.

Dr. Kapusta described in considerable detail some of the factors entering into the potash industry, indicating that all suppliers of this fertilizer ingredient are cognizant of needs of manufacturers and try to furnish a

Turn to **PANELS**, page 20

California Fertilizer Assn. Extols Merit of U.S. Free Enterprise System

CORONADO, CAL.—A panel discussion on the fertilizer industry, past, present, and future; a report on Russian agriculture; and strong pleas for support of the private enterprise system featured the program presented to some 450 persons attending the 37th annual convention of the California Fertilizer Assn. here Nov. 13-15. Headquarters of the meeting was the Del Coronado Hotel.

Speaking on the subject of "Stand Up and Be Counted," Tyler Macdonald, senior vice president and marketing director of Hixson and Jorgenson, Inc., Los Angeles advertising agency, told the CFA assembly that the private enterprise system has proved to be the best in the world. Our problem, he said, is not one of over-production, but rather, of under-consumption. "Our society is not geared to the slow, but each person in America is permitted to travel at his own speed. The concept of indispensability of the mentally well-endowed has contributed in a major

Turn to **CFA**, page 20

Oregon Co-ops Relieved From State's Excise Tax

PORTLAND, ORE.—Oregon's supreme court has ruled that federated cooperatives do not have to pay the state's corporation excise tax.

Federation cooperatives, of which Oregon has about 25, are formed by other cooperatives. The state tax commission sought to collect a tax on materials sold by the federated cooperatives to their member cooperatives.

After the tax commission tried to collect the tax from Pacific Supply Co-op for the years 1954 through 1957, that cooperative sued the commission.

The supreme court, upholding Circuit Judge Alfred T. Sulmonetti, Portland, ruled that the cooperative does not have to pay.

The decision by Justice A. T. Goodwin gives federated cooperatives the same tax exemption that is given to other cooperatives.

The amount which the commission sought to collect from Pacific Supply was only $52 per year, but the tax commission said it and the other federation cooperatives do a business of $31,000,000 a year in Oregon, all through sales to their member cooperatives.

New Herbicide Facility Under Way for Monsanto

MONSANTO, ILL. — Monsanto Chemical Co. has announced construction is under way here on a new unit for the manufacture of 2,4-D and 2,4,5-T esters for broadleaf weed and brush control.

Scheduled to come on stream in January, the facility is designed to produce these esters in improved quality and will assure the reserve capacity necessary to meet peak season customer demands, according to Monsanto.

The company markets a complete series of liquid formulations of varying volatility, tailored for maximum effectiveness in both pre- and post-emergence applications.

James W. Starrett, Jr., manager of pesticide products sales for the company's Agricultural Chemicals Division, estimates the current domestic market for 2,4-D at 29.1 million pounds per year, an increase of approximately 25% in the past five years.

PLANT FOOD SOCIETY ELECTS OFFICERS

CLEMSON, S.C. — Officers named at the Nov. 21 meeting of the South Carolina Plant Food Educational Society were as follows: W. Nat Henderson, Jr., Ninety-Six, S. C., president; David H. Banks, Jr., St. Matthews, S.C., vice president, and A. B. Everett, Columbia, S.C., secretary-treasurer.

Program topics included a review of the state's soil fertility program in the state, county and community and talks on the "new look" of cotton in South Carolina.

BETTER SELLING FEATURES INSIDE.....

MERCHANDISING MARKETING SECTION

Versatile Business . . .

'Everything in Pest Controls' is motto of Orchard Supply Co., Sacramento, Cal., but firm also does custom fertilizer application and performs other services for customers . . . *Story on page 9*

Soil Tests Pay Off . . .

Energetic dealer makes fertilizer converts out of farmers who claim they don't believe in fertilization. Mathis, Texas, partners invite soil tests, follow up on farmer contacts, make sure good results are widely publicized . . . *Story on page 9*

Don't Abuse Credit . . .

Michigan economist says "there is no such thing as free credit." How far to go on credit is problem of both manufacturers and dealers. Credit agencies can be of great help . . . *Article on page 15*

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SOLUTIONS CONFERENCE—View of part of crowd attending National Fertilizer Solutions Assn convention at the Peabody Hotel, Memphis, Tenn. Full house indicates eager interest in subjects covered at conference. Group heard talks on salesmanship, markets, and on outlook for fertilizer industry.

MARKETING HINTS . . .

Increasing Sales Stressed As Solutions Group Meets

MEMPHIS — Sales, management practices and a look into the future received heavy emphasis during the National Fertilizer Solutions Assn. annual convention held here Nov. 9-11.

Robert A. Lemler, sales manager, Aylco Chemical Co., Sullivan, Ill., outlined six major factors which, he said, can spell the difference between success and failure for salesmen. They are:

1. Attitude—"Acid in the attitude deteriorates the soul, costs money, friends and sales."
2. Goals—"The goal is responsible for many new programs, programs born to boost sales in order to meet established goals."
3. Imagination—"Only new ideas born out of imagination will keep us on the move, positive in attitude and reaching for goals. How does this apply to liquid fertilizer? We have the idea that scented products may have a place. How about 9-9-9 that smells like new mown hay? We plan to give it a try."
4. Desire—"It takes desire to go back again and again with your story to prospective customers. One thing sure—they are not coming to see you. Desire makes the story stick and finally results in orders."
5. Demonstration with Showmanship—"A master salesman uses the senses wherever possible. We can certainly use several of them in selling plant food. **Sight:** Show soil test reports. **Touch:** There is nothing so reassuring to a farmer as the oily feel of Uran Nitrogen. **Smell:** How about plant food with an odor like new mown hay? **Taste:** Livestock enjoy the taste of corn with 10-20% more protein content. This is possible from a good fertility program. **Sound:** Advertise and tell him and tell him and tell him."
6. Service—"To increase sales we must see more people, run more soil tests, run more field checks, take more pictures, offer more side dressers, tanks and trucks. In short, our success will be in exact proportion to our service."

F. E. Hartzler told the convention that few executive decisions in any field can be any better than the evidence and experience upon which they are based. "The prime and basic tool of any management decision should be the accounting and business records that are available," he said.

Mr. Hartzler went on to say that there are few decisions that are not hedged by the possibility of backing up. "An executive who makes a decision definitely committing his operation when he could use a delayed decision is taking a dangerous gamble," he stated. "There are, however, two primary decisions which are irreversible. The first is starting a new business and the second is pricing."

The management expert listed four factors that should be considered in making a decision on business expansion—total potential and competition in the area, amount of profit against the amount of investment, does the owner have an established pattern of operation that can be moved from one location to another successfully and is a man available for training?

"Pricing can be revised downward," Mr. Hartzler commented, "but seldom upward once the buying season is begun. Price should be based on selling price, not from the cost price.

"We have not found a single dealer with an allowance on his books for shrinkage. A legitimate deduction or charge to expense of between one-half and one percent certainly should be made. No merchant and no dealer can deliver out the front door 100% of the merchandise that comes in the back door," Mr. Hartzler said.

A man who has traded agricultural ideas with Russian premier Nikita Khrushchev outlined his experiences in feeding urea to cattle. Roswell "Bob" Garst, Coon Rapids, Iowa, said, "I have been feeding urea to cattle for 12 years and it works perfectly."

Mr. Garst said he feeds steers a mixture of 90% commercial molasses, 10% urea with free choice bonemeal on the side. It is his theory that this stimulates bacterial activity in the animal's rumen and enables the steer to utilize more cheap roughage.

Walter S. Colvin, nitrogen division, Allied Chemical Corp., New York, told newsmen that overseas fertilizer manufacturers have not only cut into most of the American export market but are making inroads on the domestic fertilizer market.

Mr. Colvin said that fertilizer manufacturers in Japan, England, France, West Germany, Norway and Holland now serve 60 to 70% of the foreign market that the U.S. used to have. According to Mr. Colvin, American manufacturers have a price of $32 a ton for nitrogen while foreign competitors offer nitrogen for $24 a ton. Japan is invading the West Coast market, he said.

"Canada also is sending in a lot of fertilizer," Mr. Colvin contended. "And Canada doesn't have to pay a tariff at all because of special trade legislation. This is tough on American fertilizer producers because we can't send fertilizer to Canada because of an anti-dumping agreement.

"In other words, for the American manufacturer to get into the Canadian market we'd have to charge a lower price than at home and that is forbidden," he said.

Donald Humphrey, Flo-Lizer, Inc., Kingston, Ohio, was named to head the organization for the coming year succeeding Hugh S. Surles, Jr., Planters Cotton Oil & Fertilizer Co., Rocky Mount, North Carolina. Edward O'Nan, Land O'Nan Warehouse, Sturgis, Ky., was elected vice president and Edwin C. Aylward, Aylco Fertilizer Division of Unexcelled Chemical Corp., Sullivan, Ill., and Edward A. Wex, Badgerland Liquid Fertilizer Corp., Milwaukee, Wis., were reelected secretary and treasurer, respectively.

New directors elected were: G. C. Matthiesen, Allied Chemical Corp.; C. I. Graves, Victor Chemical Works; John Dale, Jr., General Metals Corp.; Lewis D. Hart, Sun Gro Plant Food Co.; R. T. Henry, Rainbow Chemicals, Ltd.; John Larkin, Farmers Mill & Seed Co.; W. R. Harrell, Tidewater Chemical Co.; Bryce W. Strackan, Southland Liquid Fertilizer Co., and Paul C. Hughes, Farmers Soybean Corp.

Outgoing President Surles called on members of the association to champion the cause of free enterprise. "What we do in the next few years will determine the destiny of the world and the system of free enterprise," he said. "I want to sound one last warning and that has to do with the terrible attitude toward profits which has arisen in our country. Many people seem to feel that profit is a terrible injustice.

"Yet the profit motive within fair limits, is the strongest economic drive ever developed by civilized man. There is nothing wrong with a fair profit so long as it is tempered with the element of fair competition.

"We have the opportunity, the responsibility, the sacred duty of proving that under the American system of free enterprise, American businessmen, doing things the American way can accomplish more than any other system on earth," he concluded.

The association's "Man of the Year for 1960" award went to E. E. Crouse, Kitchel, Ind. Mr. Crouse operates the Crouse Soil Service and is a former president of the association.

Donald Humphrey

E. E. Crouse

HONORED AT CONVENTION—Don Humphrey, Flo-Lizer, Inc, Kingston, Ohio, was named president of the National Fertilizer Solutions Assn. at the group's recent meeting in Memphis. He succeeds Hugh S. Surles, Jr., Planters Cotton Oil & Fertilizer Co, Rocky Mount, N.C., as head of the association. Mr. Crouse, operator of Crouse Soil Service, Kitchel, Ind., was named "Man of the Year for 1960" by the NFSA. Mr. Crouse is a former president of the

French and Spanish Potash Imports Reduced

NEW YORK—Domestc potash producers are regarding the apparent cutback of French and Spanish muriate imports with a "wait and see" attitude. A slowdown of workers, amounting to practically a strike at the French mines in Alsace, has reduced supplies by an estimated 60,000 to 70,000 metric tons, reports say.

On the Spanish scene, mechanical difficulties this fall have slowed down production at the potash mine at Cardona, Spain. This trouble in the mine's main shaft, is expected to reduce output from the mine for a period of around five months, making a loss of from 20,000 to 25,000 metric tons.

The two incidents will of course have an effect on both U.S. and world potash markets. French Potash & Import Co., New York, importer for both Spanish and French potash, has stated that the cutback will be around 8% of expected shipments.

Potash industry spokesmen, however, say that the expected imports during 1960-61 would have been considerably higher than those of the last year, and a reduction of 8% will make the tonnage roughly the same.

TONNAGE REPORTS

Arkansas

LITTLE ROCK, ARK. — Fertilizer sales in Arkansas during October, 1960, amounted to 10,400 tons, reported the State Plant Board. This compares with 8,515 tons sold during the same month in 1959.

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New Mexico

UNIVERSITY PARK, N.M.—Fertilizer shipped into New Mexico during the period July 1, 1960, through Sept. 30, 1960, amounted to 7,121 tons, reported the State Department of Agriculture. Anhydrous ammonia was the most popular, with 2,716 tons being received.

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South Carolina

CLEMSON, S.C. — Fertilizer consumption in South Carolina for the period July 1 through Oct. 31, 1960, increased more than 13,000 tons or 22% over the same period last year.

According to B. D. Cloaninger, director, Clemson College fertilizer department, this increase was recorded in spite of the fact that figures for the fiscal year ending June 30, 1960, showed a decrease in total tonnage of 12%. The total plant nutrient content in mixed fertilizers decreased only 10%, however.

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Kentucky

LEXINGTON, KY. — July through September, 1960, fertilizer sales in Kentucky amounted to 47,781 tons, or slightly less than the 49,489 tons registered during the similar period in 1959, reported the Department of Feed & Fertilizer, Kentucky Agricultural Experiment Station.

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Wisconsin

MADISON, WIS. — Fertilizer consumption in Wisconsin during the fiscal year 1959-60, amounted to 419,688 tons, announced the Wisconsin State Department of Agriculture. This compared with 474,255 tons for the 1958-59 fiscal year.

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Illinois

URBANA, ILL.—Total plant food sales in Illinois for the first six months of 1960 were the second largest ever reported for any six-month period. However, sales were almost 10% under the record-breaking first six months of 1959. There is a trend toward higher analyses in mixed fertilizers, L. T. Kurtz, University of Illinois agronomist, said. About three fourths of the mixed fertilizer tonnage was in 10 leading grades averaging 39 1 units of plant food. This compares with a 38 0 average for the same period in 1959. About one fourth of the mixed fertilizer sold was in a 1-4-4 ratio. The report, issued by the University of Illinois Department of Agronomy, showed that 418,473 tons of mixed fertilizers and 158,837 tons of rock phosphate were sold from Jan. 1 to June 30.

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Oklahoma

OKLAHOMA CITY, OKLA.—Fertilizer sales in Oklahoma for the period July 1 to Oct. 1, 1960, amounted to 61 396 tons, substantially higher than the 45,939 tons reported for the period last year, according to the Oklahoma State Department of Agriculture.

North Carolina Board Posts New Regulations

RALEIGH, N.C.—The State Board of Agriculture of North Carolina, following a hearing on Nov. 21, voted to make a single change in regulations governing mixed fertilizer grades and pesticides. It allowed the sale of 3-9-18 fertilizer for peanuts.

A new list of fertilizer mixtures with which pesticides may be combined was presented by the board. The new list became effective Dec. 1 and will continue until July 1, 1961.

Under the new arrangement, fertilizer grades which may be mixed with certain pesticides are: (1) 4-8-12, 5-10-10, 6-6-12, and 6-12-6 mixed with aldrin, dieldrin and heptachlor for corn; (2) 0-10-20, 2-12-12 and 3-9-18 mixed with aldrin and heptachlor for peanuts; (3) 3-9-9 and 4-8-13 mixed with aldrin, chlordane, dieldrin and heptachlor for tobacco.

The board also ruled aldrin, chlordane, dieldrin and heptachlor can be mixed with 4-10-10 for bulbs and sweet potatoes, 8-8-9 for Irish potatoes and 6-12-6 for sweet potatoes and other vegetables. The pasture fertilizer grade of 2-12-12 may be mixed with aldrin, chlordane and dieldrin.

NEW FERTILIZER STORE

PHOENIX, ARIZ.—Oscar Johnson has opened Johnson's Fertilizer Service at 4120 W. Bethany Home Road.

GROUND-BREAKING — California Chemical Co., Ortho Division, broke ground recently on the site where its new $22 million fertilizer plant will be built on the Mississippi River at Ft. Madison, Iowa. Shown in the ground-breaking ceremonies, left to right, are: Walter Guenther, mayor of Ft. Madison; Howard Grady, Ortho Division president; Herschel B. Loveless, Governor of Iowa, and Claude Hickenlooper, U.S. Senator from Iowa. The California company has recently awarded a contract for construction of the new plant to the Bechtel Co.

California Chemical Co. Awards Contract for Construction of Plant

FT. MADISON, IOWA—A contract for construction of the California Chemical Co. ammonia plant here has been awarded to the Bechtel Co., according to an announcement by J. Q. Cope, vice president of Calchem.

The ammonia plant, most important unit in a complex of chemical fertilizer plants, cost of which is expected to exceed $22 million, is planned for completion late in 1961 or early in 1962.

Utilizing natural gas as feed stock, this ammonia plant will combine it with nitrogen from the air to produce 300 tons of anhydrous ammonia a day. This product will be used in other plant units to produce nitric acid, ammonium nitrate and complex pelleted fertilizers.

In addition to the new Iowa plant, the company also has fertilizer manufacturing facilities in Richmond, Cal., and Kennewick, Wash.

'Tell People That All Food Is Chemical,' Florida Speaker Tells Nutritionist Group

GAINESVILLE, FLA.—The nutritionist of today has a selling job to perform with the layman to counteract many false impressions that have arisen because of peculiar notions about the use of chemicals in plant and animal life, Dr. F. N. Andrews, head of the dairy department of Purdue University, told the Florida Nutrition Conference recently.

"There are many who believe the age of chemistry is unnatural, dangerous, and on the whole, opposed to nature. The nutritionist must explain that man originated and evolved in a chemical world and that all living things depend upon the 102 known chemical elements.

"He must enlighten that segment of the population which thinks of nature as beautiful, pure and tolerant and which resents the advances in knowledge which led to the development of chemical fertilizers, synthetic vitamins, amino acids, hormones, antibiotics and a variety of drugs.

"The layman," he said, "has the philosophy that if nature included a substance in food, that substance is somehow unique and particularly useful. It should be pointed out that arsenic, for instance, is one of the oldest insect killers and an element that has been under control on vegetable and fruit crops for a very long time. In organic combinations, nature has dealt with arsenic safely for thousands of years. Oysters contain 5-10 ppm. of arsenic and the shrimp and lobster family up to 170 ppm."

The "cranberry incident" of last fall was unfortunate in that it served to associate the public mind with cancer and chemicals. Individuals must be re-educated so they, as consumers, will know the facts, Dr. Andrews continued.

Such re-education is needed to offset claims of people who think in terms of organic growing and make sweeping claims that lack sufficient grounds for support, he said.

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Panel Discusses . . .

How Instrumentation Can Help To Control Modern Production

WASHINGTON—A panel comprising representatives of manufacturers of various instruments of the type used in fertilizer manufacturing was presented at the Nov. 3 session of the fertilizer industry Round Table. Al Simmons, Fischer & Porter Co., described the operation of his firm's product, the magnetic flowmeter. Through the use of schematic drawings and photographs projected on a screen, Mr. Simmons told the group in detail how the apparatus works, explaining that the magnetic field in the meter is operated by an electromagnet actuated by the flow of material through the device.

Rate of flow, he said, is dependent entirely upon the flow velocity. The induced voltage then on the magnetic flow meter is directly proportional to the volumetric flow. Thus, the magnetic flowmeter information is not dependent upon the viscosity of the material or density or solid content of the fluid itself.

He said that the meter is constructed of a stainless steel tube lined with a non-conductive material. The electrodes which come in contact with the fluid can be constructed of various materials so that a potentially corrosion-resistant meter can be easily manufactured.

The speaker said that meters of this type are calibrated for a very small percentage of error, on the basis of running at capacity. In cases where less than capacity flow is being measured, the meter can be adjusted to give accurate readings so that the manufacturer will be able to keep up on the situation in his own plant. Mr. Simmons further urged users of meters to keep the pipes clean so that the interior diameter will not be altered by deposits on the pipe which would alter the volume of material going through the meter and could cause erroneous readings.

William Strauss, Foxboro Manufacturing Co., reported on case histories and new developments in instrumentation in the fertilizer industry. Using slides on the screen, Mr. Strauss told about past efforts in the fertilizer industry to maintain uniformity of product through manual efforts. "When the variables that were being manually controlled changed only gradually, it was perfectly satisfactory for an operator to look at the record on the instrument and see if any change is required and then make a manual correction. If the correction were not enough or too much, there was still time for another try at it. However, as specifications became tighter this means of manual control did not suffice," he added. It was then that the automatic controller did automatically what the operator had formerly done manually.

Mr. Strauss also pointed out the practicality of having all recording devices centralized for efficient operation with a minimum of personnel. "More and more variables are necessary to be recorded in the modern fertilizer plant," he said.

"It is not practical to have one instrument locally recording on one floor and another several hundred feet away and perhaps still another on the floor above. With automatic control the advantage of a centralized control panel is not only practical, but a necessity. The operator," he said, "can see all the variables in a flash. These include temperature, level, pressure, load, and analysis."

He said that too much time is involved between the sample taking and the laboratory report on an analysis and that this method cannot cope with high speed production techniques now being operated in the fertilizer industry. Modern production rates per hour are too high to afford the luxury of laboratory analysis for production control, he concluded.

The panel discussion on instrumentation was continued by a paper by Don Warren of Omega Manufacturing Co. Mr. Warren said that the variable speed belt presents quite an advantage in calibrating the flow of material.

There are two ways to change the rate of flow on belts, he said. First, to carry a load on that belt that is constant per foot of belt and change the rate by altering the speed of the belt. The other way is to have a constant speed belt but vary the load per foot. The first way, he said, is better for several reasons. It gives a constant flow per foot and to vary the belt speed makes the device more flexible and provides a constant flow to the scales.

The speaker said that such equipment should be installed away from points of excessive vibration and that a screen should be installed to maintain a more constant size of material. He urged users of such equipment to "use the instruction book because it is both accurate and explicit." Warning was given about the possibility of residual build-up on the belt, and Mr. Warren suggested that for best maintenance, the same operator should be on the job to keep the belt clean and thus accurate.

William Law, Minneapolis-Honeywell Co., discussed the subject of temperature control and moisture in the production of high quality mixed fertilizers, emphasizing the necessity for perfect control under modern manufacturing conditions.

In speaking of the necessity for temperature control in the dryer, Mr. Law said that if the air temperature of a dryer is controlled to within plus or minus five degrees, the moisture

Books on Fertilizers And Their Use

USING COMMERCIAL FERTILIZERS—Second Edition

Dr. Malcolm H. McVickar, chief agronomist, California Spray Chemical Corp., formerly chief, Agronomic Education, National Plant Food Institute

Covers advances in fertilizer technology, manufacturing processes, and techniques of fertilizer application which have contributed to more efficient agricultural production in the nine years which have elapsed since the first edition. New fertilizer materials, their manufacturing processes and agronomic merits, are discussed in this book. An entire chapter is devoted to liquid fertilizers. New chapters covering special uses of fertilizers, mixtures with pesticides, fertility-moisture relationships, and the economics of fertilizers have been added. Two new chapters on "Chemical Sources vs. Organic Sources of Plant Nutrients" and "Lease Arrangements Involving Fertilizer Use" offer a more complete picture of fertilizers in present-day agricultural operations. Dr. McVickar tells in this easy to read book how to build profits, and how to achieve the increased production needed now and in the years ahead by our growing population. 1961. 286 pages, 48 tables, 115 illustrations..... $4.75

FUNDAMENTALS OF SOIL SCIENCE—Third Edition

By C. E. Millar, late Professor Emeritus of Soil Science; L. M. Turk, director; and H. D. Foth, associate professor of soil science, Michigan State University.

This text completely revises and brings up to date the second edition. Special attention is given to progress made in the basic principles of soil science since the publication of its predecessor. This edition includes more emphasis on soil texture and the concept of the texture profile, more discussion of the influence of the soil forming factors on soil development, and more facts about clay minerals to provide a clearer understanding of the differences in the behavior of soils. 496 pages, illustrated. 6x9¼"... $7.75

SOIL FERTILITY AND FERTILIZERS (1956)

Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. Dr. Tisdale is Southeastern regional director of the National Plant Food Institute and Dr. Nelson is with the American Potash Institute. 430 pages, cloth bound $8.00

PRODUCING FARM CROPS

By Harold K. Wilson, late Professor of Agronomy and A. Chester Richer, Professor of Soil Technology, Pennsylvania State University.

Just off the press is this comprehensive and down-to-earth textbook on how to raise farm crops economically, scientifically, and profitably. Written in easy-to-read and straightforward style, and combining the knowledge of a crops specialist and a soils specialist, this book brings you the latest developments in the science and technology of producing farm crops. Although written for the use of agricultural students primarily the book has been kept free of the tedious characteristics commonly associated with textbooks; practicing farmers will find it of as much value as do students. Broadly conceived, dealing not only with the entire field of crop production and its immediate relationships with the sciences of agronomy, botany, entomology, and agricultural economics, but also with the relationships of crop production to farm management and to the agricultural industry as a whole. 336 pages, 137 illustrations $5.75

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Plant Food Institute.

An entirely new, one-of-a-kind book, it is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color $3.00

FREEDOM TO FARM

By Ezra Taft Benson, Secretary of Agriculture

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ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE

By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application $1.95

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A symposium—published jointly by the American Society of Agronomy and the National Plant Food Institute.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color $4.50

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M. H. McVickar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, illustrated $3.00

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POTATO CHIP TESTS

DAVIS, CAL.—Tests to determine the role of potash fertilizers in producing quality potatoes for processing are being completed by the University of California.

The three year research program was begun in 1958. It is specifically seeking to determine the effects of potassium sulfate and potassium muriate on potatoes grown for potato chips.

The scientists chose soils low in potash for the study. Plots were divided into bands receiving 100, 200 or 300 lb. of potash per acre, plus a control band receiving no potash. Nitrogen and phosphorus were applied in usual amounts.

Leaf stems were analyzed periodically during the growing season to determine how fast the plants were absorbing the chemicals.

These factors were checked at each harvest:

1. Yield.

2. Grade.

3. Sugar Content. Reducing sugars causes potato chips to turn brown.

The potatoes were chipped before and after storage to determine the effects of potash on weight loss and on chip color and oil content.

content of the product as it left the dryer would hold within specifications. It is possible, he said, to control exit gas by insertion of a thermocouple with some other measuring device at the exit end of the dryer. When set up properly, temperature can be controlled without too much attention from the operator.

The speaker told of automatic controls which will cut off the heat at optimum ranges to prevent excessive temperatures which could damage the product being made.

Speaking for James Archer, originally scheduled to appear on the program, was Frank Nielsson of International Minerals & Chemical Corp., who showed a film presentation on proper methods of sampling fertilizer. The sequence pictured a man using various types of sampling tubes for the work and because of different techniques and equipment received different answers on his analysis of the same material.

Different types of riffles were shown and their importance in the reporting of accurate analyses of mixed fertilizers. Mr. Nielsson emphasized that sampling technique is one of the more important considerations in checking fertilizer analyses.

Farm Editor Award Presented to Iowan

CHICAGO — Glenn Cunningham, assistant farm editor of the Des Moines (Iowa) "Register and Tribune" and co-editor of the "Iowa Farm and Home Register," was honored as the "Newspaper Farm Editor of the Year," in a nationwide contest sponsored by the Newspaper Farm Editors Assn. and the National Plant Food Institute, at a special luncheon ceremony at the Conrad Hilton Hotel in Chicago on Nov. 27.

Louis H. Wilson, secretary and director of information of the institute, presented to him a scroll signed by the national board of judges for the contest — J. H. Florea, president, American Agricultural Editors Assn. and editorial director, Watt Publishing Co., Mount Morris, Ill.; Harold R. Lewis, assistant director of information, U.S. Department of Agriculture, Washington, D.C., and J. R. Wiggins, vice president and executive editor, "The Washington Post," Washington, D.C.

Mr. Cunningham was honored for his editorial contributions to efficiency in farming and for his overall excellence in service to agriculture. The contest covered editorial material for the period July 1, 1959, to June 30, 1960.

New Business Started

LITTLE ROCK, ARK.—Arkansas Seed Sales Co., Inc., 415 East 5th St., North Little Rock, has filed articles of incorporation with the Arkansas Secretary of State to operate a seed and agricultural products business.

The firm was authorized 500 shares of $10 stock and listed $300 as its paid-in capital.

NINE-MONTH REPORT

NEW YORK—Sales and profits of Olin Mathieson Chemical Corp. for the first nine months of 1960 were approximately the same as for the comparable 1959 period. Sales and earnings for the third quarter, however, were below 1959 levels. Sales and operating revenues of Olin Mathieson in the U.S. and Canada totaled $527,752,000 in the nine-month period ended Sept. 30, compared with $529,782,000 for the first nine months of 1959. Net profits in the first nine months of this year amounted to $26,437,000, or $1.98 per share, compared with $26,752,000, or $2.01 per share, in the first three quarters of 1959.

Study Under Way On Bulk Handling and Storage of Fertilizers

KANSAS CITY, MO. — A study aimed at helping fertilizer dealers determine the economics and methods of getting into bulk storage and handling of solid fertilizers is being made by Spencer Chemical Co.

Dr. R. L. Balser, Spencer's product and marketing manager for solid fertilizers, says, "Since the shipment and application of solid fertilizers in bulk is already being widely practiced, more and more dealers are considering the addition of bulk storage and handling facilities."

Dr. Balser said that this increased interest in the possible economies of handling bulk solids prompted Spencer to set up dealer-type bulk storage and handling facilities at Lawrence, Kansas, and Marion, Ill. Both installations are 68-ton capacity overhead bins. No major storage or handling problems have been encountered after a season's use of the Lawrence facilities, Dr. Balser reports.

Additional engineering work on smaller units of wooden construction is now in the planning stage, he said. This will be used to advise dealers who plan to construct their own bulk facilities.

Illinois Custom Spray School Set for January

URBANA—H. B. Petty of the University of Illinois has announced that the 13th annual Custom Spray Operators' Training School will be held Jan. 25-26, 1961. The school is sponsored by the U. of I. and the Illinois Natural History Survey.

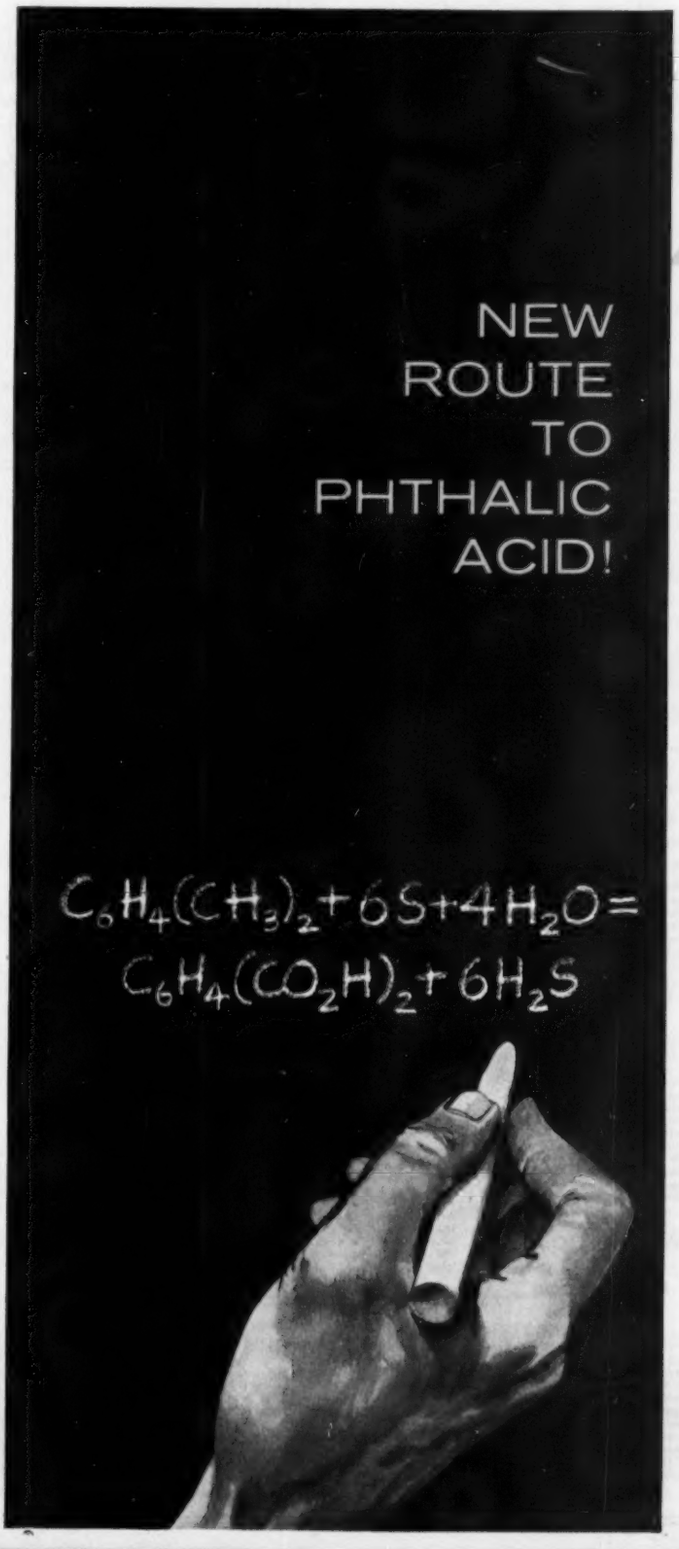
The event usually attracts some 700 persons associated with the agricultural chemical industry.

USDA Committee Calls For Resistant Alfalfa

WASHINGTON — Varieties of alfalfa resistant to alfalfa weevil are badly needed for possible control of this pest, according to the U.S. Department of Agriculture's Forage, Feed and Seed Research and Marketing Advisory Committee.

The committee, at its annual meeting in Washington Nov. 16-18, urged intensified research to develop these resistant varieties which they say offer the best potential future control method. Long a serious pest in western growing areas, the alfalfa weevil has also become a major pest in eastern areas during the past nine years.

Committee members also pointed to the need for continued stress on basic research. They expressed the view that these fundamental studies should be a primary concern of USDA's research units.



SULPHUR
helps to create
headline products

In a report to the Petroleum Division of the ACS, Dr. William G. Toland of the California Research Corporation recently announced the development of a new method for producing Phthalic Acid, with the following over-all reaction:

$$C_6H_4(CH_3)_2 + 6S + 4H_2O = C_6H_4(CO_2H)_2 + 6H_2S$$

Note that the presence of Sulphur right smack in the middle of this reaction is necessary for its completion. The Sulphur leaves the process at this point. The hydrogen sulphide can be oxidized to elemental Sulphur and returned to the initial reaction. It is thus operable in a closed cycle.

According to Dr. Toland, who developed this new route to phthalic acid, the process is simple and capable of high recoveries.

Here is another good example of how strongly Sulphur is in the processing picture. Together with its many derivatives it enters into countless reactions.

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INDUSTRY PERSONNEL NEWS

Named by Summers Co.

BALTIMORE, MD. — Announcement has been made by Summers Fertilizer Co., Baltimore, that Jere G. Moynihan, general sales manager for Summers in the state of Maine and New Brunswick, has transferred his headquarters from Sandy Point, Me., to Houlton, Me. Summers' Aroostook activities formerly in charge of F. H. Totman, will be assumed by Mr. Moynihan. Mr. Totman, who has been with Summers since its organization in 1922, will continue as a director of the company and collaborate with Mr. Moynihan on Aroostook County potato transactions. Since 1942, Mr. Moynihan has held various positions in both the production and management of Summers' and Northern Chemical Industries' interests in Maine.

Jere G. Moynihan

●

Representative Named

NORFOLK, VA. — F. S. Royster Guano Co., Norfolk, has appointed James T. Via, Suffolk, Va., sales representative in its local Norfolk territory to succeed C. V. Walker. Mr. Via graduated from Virginia Polytechnic Institute, Blacksburg, in 1955 and finished two years graduate work at V.P.I. in 1958.

●

Chemico Elects

NEW YORK — James H. Curtis, president of Chemical Construction Corp. (Chemico), has announced the election of Clark P. Lattin, Jr., as vice president in charge of petroleum and petrochemical development for Chemico. Mr. Lattin was formerly a vice president, member of the board of directors and member of the executive committee of Foster Wheeler Corp. Chemico is the wholly-owned chemical process engineering and construction subsidiary of Electric Bond & Share Co.

Hodag Names Two

SKOKIE, ILL. — Hodag Chemical Corp., Skokie, has added two more men to its technical staff, it was announced by Sheldon E. Kent, president of the firm. Rocco L. Russo has been named technical service manager, and will deal primarily with field problems, laboratory testing, and new product evaluation. Formerly with the Smith-Douglass Fertilizer Co., Inc., and the Weaver Fertilizer Co., where he was chief chemist, Mr. Russo holds a degree in chemistry from William and Mary College.

Rocco L. Russo

Hodag also announced the appointment of Harry B. Parker as technical representative to the paper industry.

●

Monsanto Appointment

ST. LOUIS—Robert A. Pohl of Anniston, Ala., manager of Monsanto Chemical Co.'s Anniston plant, has been appointed manager of production practices in the company's Overseas Division at St. Louis.

In his new position, Mr. Pohl will be responsible for the initiation of programs to assist Monsanto subsidiary, associated and affiliated companies overseas in improving their production techniques. He also will assist these firms in the implementation of such programs.

Mr. Pohl is a graduate of the Missouri School of Mines & Metallurgy where he received a BS degree in chemical engineering in 1942. He joined Monsanto that same year at the company's John F. Queeny Plant at St. Louis where he held a number of supervisory positions.

●

Flying Manager Named

JERSEYVILLE, ILL.—Richard E. McClaine has been named central district manager of the Baughman Manufacturing Co., Jerseyville, Ill., according to James E. Cadle, assistant general manager. His territory includes all states east of the Mississippi River and north of Mississippi, Alabama, Georgia and North Carolina. Like all Baughman salesmen, "Dick" is a licensed pilot and will cover this large area by air.

Richard E. McClaine

He is a graduate of Ohio University, and spent five years with the Scripps-Howard newspapers, served two years with the U.S. Army, and was later on the public relations staff of the state of Ohio, Aviation Division.

●

Cyanamid Appointment

NEW YORK—The appointment of Patrick M. O'Connor as administrative assistant to the marketing director of American Cyanamid Co.'s agricultural division was announced by E. H. Smythe, division director of marketing.

Mr. O'Connor joined Cyanamid in 1952 as a budget accountant and has held several responsible positions in the budgets and statistics departments of various company divisions. In 1958, he became manager of budgets for the Agricultural Division. He is a graduate of St. John's University where he received his B.B.A. degree with a major in accounting. Prior to this, he served three years with the U.S. Marine Corps.

●

Made Sales Manager

ST. LOUIS, MO.—John S. Sullivan of Stamford, Conn., has been appointed sales manager of the New York district for Monsanto Chemical Co.'s agricultural chemicals division, effective immediately.

John S. Sullivan

Mr. Sullivan has served as acting sales manager for the district since August when he transferred from the company's St. Louis headquarters. He holds a BS degree in agricultural chemistry from the University of Arizona (1946) and joined Monsanto in 1951.

●

Royster Appointment

NORFOLK, VA.—Ross H. Walker has been appointed sales representative for F. S. Royster Guano Co., Norfolk, and will cover the West-Central portion of Alabama, the company has announced. Working out of Royster's Bessemer, Ala., sales office, Mr. Walker succeeds R. W. Cobb.

Books on Pesticides

THE GARDENER'S BUG BOOK (1956)

Dr. Cynthia Westcott

The Complete Handbook of Garden Pests and their control. Information, scientifically accurate but easy to read on 1,100 insects, mites and other animal pests that attack trees, shrubs, vines, lawns, flowers, fruits and vegetables in home gardens. Illustrations in full color. Control measures combine the latest in chemical developments with time-honored cultural measures. Helpful to all who serve the general public and to truck farmers and fruit gardeners. 579 pages, cloth bound $7.50

HANDBOOK OF AGRICULTURAL CHEMICALS —Second Edition

Lester W. Hanna, Agricultural Enterprises, Forest Grove, Ore.

As the title implies, this book contains broad information and tables on not only the chemical products themselves, but also on toxicity, residues, registration, terminology and emergency treatments. A fold-out chart gives compatibility data on numerous materials for formulators. Information on fertilizers includes soil elements, trace minerals, and application techniques. Descriptive material is also presented on fumigants, fungicides, herbicides, systemics, growth modifiers, livestock chemicals, rodenticides, and antibiotics. Information on materials and techniques is written fully with illustrations and tables. 490 pages..... $5.95

INSECT PESTS OF FARM, GARDEN and ORCHARD—Fifth Edition (1956)

Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES

T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additives are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

MODERN INSECTICIDES AND WORLD FOOD PRODUCTION

F. A. Gunther, Ph.D., M.A. and L. R. Jeppson, Ph.D., M.S.

This book by two members of the Citrus Experiment Station of the University of California is not written for the specialists in the fields of economic entomology and the chemistry of insecticides, but is designed to provide a general and comprehensive insight into the whys and wherefores of modern insecticides and acaricides, the problems of, and arising from, their use. Sufficient details, examples, and interpretations are included to encourage the reader to develop his own opinions about these necessary but often poisonous substances. The encouragement of real interest, tolerance, and understanding of the modern pesticide situation is the objective of this book. 1960. Illustrated, with tables and indexes $8.50

HANDBOOK OF PEST CONTROL —Third Edition

Arnold Mallis

Completely revised and modernized, this book is larger and more complete than its predecessors. It deals primarily with household and industrial pests—insects, rodents, etc., their life cycles, habits, identification and the latest methods and materials used in their control. It is written for the pest control operator, insecticide manufacturer and marketer, entomologist, chemist and others interested in modern methods and materials of pest control. Recommended by educators as a text book in college entomology. Measures 6 by 9 in., grey cloth binding, gold stamped. Has 1132 pages, more than 200 illustrations, 26 chapters.. $12.50

THE CHEMISTRY AND ACTION OF INSECTICIDES

Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages $10.50

ADVANCES IN PEST CONTROL RESEARCH— Vol. 2

Edited by R. L. Metcalf, University of California, Citrus Experiment Station, Riverside, Cal.

This book, an annual series, treats pest control as a distinct discipline, discussing chemical, physical and biological methods from the common viewpoint of the basic principles involved and applying them to the control of weeds, fungi, bacteria, insects—all organisms which compete with man for his food supply, damage his possessions, or attack his person. Each annual volume contains chapters contributed by outstanding scientists having intimate knowledge of various pertinent topics within the field, presenting not only comprehensive reviews of recent advances but also critical evaluation of new developments and concepts. This volume continues the same plan which won immediate acceptance for the series. In eight chapters, a group of experts present and interpret recent advances in subjects ranging from the innate toxicity of fungicides to isotope dilution techniques and the spread of insecticide resistance, 1958; 434 pages, 110 illustrations, 43 tables $12.50

FOREST AND SHADE TREE ENTOMOLOGY

Roger F. Anderson, School of Forestry, Duke University

Provides the reader with a fundamental understanding of insect life, and also prepares him to deal with actual forest insect problems. To accomplish this the book is divided into two sections. Section I provides necessary background for understanding particular insect types and problems, and also sets forth basic principles in the choice and application of insecticides and execution of forest insect surveys. Section II offers detailed discussion and description of the more important forest insect species, and is designed to enable the reader to identify insect types quickly through observation of the insect and examination of tree damage. Includes biological information, identification aids, etc. 1960. 428 pages, illustrated $8.50

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Rutgers Pesticide Conference Hears Reports on Insecticides, Herbicides

NEW BRUNSWICK, N.J.—New Jersey had its worst dose of Red Leaf disease on oats this year, with a yield loss of around 25%. However, the loss was probably not much noticed in a better than average oat year, stated Dr. Joseph Peterson, plant disease researcher, at Rutgers University's annual pesticide dealers conference Nov. 17.

Dr. Peterson was among several Rutgers staffers who brought the dealers up to date on research results, besides offering their specific recommendations for next year. The best attended of any such conference held so far, the all-day meeting at the College of Agriculture attracted close to 250 key leaders in the industry.

The outbreak of Red Leaf that affected other sections in 1959 went hardly noticed in New Jersey. North Jersey counties bore the brunt of the loss, especially in spring-planted oats.

Aphids are known to carry the disease, and as yet there is no satisfactory resistant line. Dr. Peterson said other experiment stations have not been too successful in their attempts to control the aphids.

Rutgers test plots next year will include oats on which some of the systemic insecticides will be tried, he said.

Granular weed-killers got a thorough going-over from Dr. Donald A. Schallock, extension weed control specialist, and William Welker, horticulturist with the Agricultural Research Service stationed at Rutgers. Dr. Schallock pointed up the growing importance of granulars with the preface that "everyone is getting into the act."

Discussing the research phases of granulars, Mr. Welker mentioned the fact that they carry past the foliage onto the soil, but success or failure often depends on the temperature after their application. Remaining on the soil surface, they may either have a long lasting effect or lose some of their activity owing to volatility.

Controlled volatility can be a real advantage in governing the speed of release of the active ingredient.

As for the practical problems in the use of granular herbicides, Dr. Schallock said he has come to appreciate pellets for several reasons. A liquid mixture can be unhandy to transport and quite often the farmer is confused by the differences between solutions, emulsions, wettable powders and such.

On the other hand, the granular form is familiar and the farmer can handle it like fertilizer.

Looking again at the disadvantage side, he said he was concerned because the equipment now available for spreading granules needs more positive calibration to avoid the danger of too much, causing injury, or too little, causing disappointment.

Much more study is needed, Dr. Schallock continued, in the effects on uniform spreading. Studies should include such things as the results of dampness on the chemical in the spreader, along with bridging-over of the granules.

He questioned the emphasis on granules in the mid-West, saying they are not necessarily needed in corn, and besides, farms generally are set up for spray applications.

In a rebuttal of this pre-arranged debate—in which each man had prepared charts listing favorable and unfavorable factors—Mr. Welker insisted that granular weed-killers have a "tremendous potential." He called attention to the possibility of applying a mixture in one application and then "forget about weed control for the season."

Dr. Ralph E. Engel, turf research specialist, announced the New Jersey Experiment Station's intention to abstain from any recommendation for pre-emergence crabgrass control in 1961. The attitude will be one of "tolerance toward their discretionary use."

He said chemicals under test have given satisfactory control of crabgrass, but the big gap seems to be a serious deficiency in the knowledge of injury and tolerance of grass seed to these chemicals.

One specific reason for holding back is the uncertainty about how the home owner might use or mis-use pre-emergence materials.

"Those of you who deal with the home owner trade well know the problems you encounter when you throw a new product into the hands of a home owner.

"He can find more ways to use this material than any research man or organization can ever test or think of."

In spite of what he called "a pretty thorough rundown" under a variety of conditions, "it would be unfair to assume that we have tested these materials under all turf grass conditions."

Dr. Robert Jenkins, nematologist, forecast many more condemnation losses of nursery stock as inspectors become better trained. Root-knot nematode galls are easy to see, he pointed out, but root-knot is only one nematode disease, and probably continued research will turn up others just as important, he said.

Acting like a man who has his work cut out for him, Dr. Jenkins ticked off some problems ahead: At what population level do nematodes begin to cause trouble? What causes population build-up? Why is damage in a field often spotty?

One lesson already learned is that a single application of a nematocide is not enough to get a kill around ornamentals such as barberry, azalea and boxwood—staple items in New Jersey's multi-million dollar nursery industry.

Research is making progress in the control of peach canker and bacterial spot control of peach, but canker remains the worst problem, according to Dr. Robert H. Daines, plant pathologist. Chemicals that work well in the lab may fail in the field.

He explained why a bacterial disease is so hard to control. A fungus spore landing on the leaves or fruit takes hours to grow into the leaves or fruit, and a spray can get to it. But bacteria swim into the host or are pulled into it through openings, and infection begins in seconds rather than hours.

Richard B. Malek reported continued success with the selective apple spray schedule that results in a less desirable finish, but has a less upsetting effect on the balance of nature and costs less than the standard New Jersey spray schedule. The saving is in the range of $75 an acre or $1.40 a tree, he said.

Face fly continued to be a growing problem last season, Dr. Philip Granett reported. Of all the materials tried, synergized pyrethrum plus repellents gave cattle the most relief.

The conference was planned by Dr. John L. Libby and Dr. Richard T. Guest, extension entomologists; Dr. Spencer H. Davis, extension plant pathologist and Dr. Schallock.

PESTICIDE CONFERENCE—A. T. Williams, left, and George Mingin, center, both of Eastern States Farmers Exchange, eat lunch with Lester P. Nichols, extension plant pathologist from Pennsylvania State University during the recent Rutgers Pesticide Dealers Conference held at New Brunswick, N.J. Box lunches were popular with the nearly 250 conferees gathered at the meeting. In photo at right, another group discusses program during break in the proceedings. They are, left to right: William J. Crist, Morton Chemical Co., Chicago; Dr. L. R. Reed, Chipman Chemical Co., Bound Brook, N.J.; Irving Lifson, Morton Chemical, and Dr. Robert V. Bielarski, Western Exterminating Co., Newark, N.J.

Cyanamid Booklet Describes Company

NEW YORK—A booklet, "This Is Cyanamid," has just been published by American Cyanamid Co., describing the company's growth from 1907 to the present time.

Its first product was calcium cyanamid, a synthetic nitrogen fertilizer. Later research with the product has developed a variety of additional synthetic products used in industrial chemical manufacturing.

Among Cyanamid's chemical products used in agriculture are fertilizers, insecticides and defoliants, the booklet says. The company also manufactures ethical drugs, paper chemicals and synthetic fibers for clothing.

Cyanamid's products are sold in 86 foreign countries, the booklet says. It has 11 operating divisions and subsidiaries, employs 28,000 persons and has 54 plants in the U.S. and abroad.

Purdue Conference Set

LAFAYETTE, IND.—The annual Purdue Pest Control Operators' Conference will be held at the Purdue Memorial Center, Jan. 23-27, according to announcement by Dave Matthew, extension entomologist at Purdue.

Registration will begin at 4 p.m., Jan. 22, Mr. Matthew says.

NOTHING TO SNEEZE AT

SALEM, ORE.—Some 11,400 acres with ragweed infestation have been labeled "controlled" by sprayers under Oregon's ragweed control program, report state department of agriculture officials here. This is 1,100 acres more than was sprayed in 1959.

Five new infestations were located in Josephine County, two in Polk County, three in Marion County and one in Clackamas County.

Pollen trapping stations were set up at several locations in the control area. The American Academy of Allergy reported that the Portland area had a zero pollen count of ragweed for the entire season. Reading of slides from other areas has not been completed.

Agronomists in 1960 Meeting at Chicago

CHICAGO—The American Society of Agronomy, in connection with the Soil Science Society of America, the Crop Science Society of America and the Agronomic Education Division, is meeting at the Morrison and Hamilton Hotels here Dec. 5-8 in its 1960 annual convention.

Subjects to be covered at the four-day conference include soil physics, soil chemistry, soil microbiology, fertilization, plant nutrients, crop physiology, ecology, production and management, turfgrass managment, seed production and technology, and land use and management.

G. F. Sprague, Agricultural Research Service, U.S. Department of Agriculture, is president of the American Society of Agronomy; B. R. Bertramson, Washington State University, Pullman, vice president, and L. G. Monthey, University of Wisconsin, executive secretary. J. B. Peterson, Purdue University, is immediate past president of the group.

Canadians Plan Agricultural Hall Of Fame Project

TORONTO, CANADA—Formation of the "Canadian Agricultural Hall of Fame Assn." is presently under way in Canada to give recognition to persons who have made outstanding contributions to agriculture. The project, according to information from the Ontario Department of Agriculture, shows promise of becoming a national agricultural institution.

A committee has been working on a plan of operation for several months. The new association will be managed by a board of 12 directors, three of whom will be residents of provinces west of Ontario, three from east of Ontario and the other six from any part of Canada.

The first responsibility of the directors is to establish a portrait gallery and to devise a plan for selecting the persons who are to be honored by having their portraits hung there. Tentative agreement has been reached on both items.

It is the opinion of the directors that the gallery should be located in the premises occupied by the Royal Agricultural Winter Fair; also that persons who made an outstanding contribution but who are no longer alive should be recognized first. Accordingly the prospects of obtaining suitable quarters at the Royal are being investigated and each national agricultural association affiliated with the Royal is being invited to name the person, now deceased, who during his lifetime made the greatest contribution to his organization in particular and agriculture in general, with a view to having his portrait hung in the gallery.

Dixie Fertilizer Co. Purchases Big Guano Deposit . . . Building New Production Unit

MERIDIAN, MISS. — Dixie Fertilizer Co., Inc., now in the process of completing its new 50,000 sq. ft. plant in Meridian, has announced purchase of the International Guano Co. and its large deposit of bat guano in caves of the Big Bend country of Southwest Texas. The transaction involves over $1 million.

The guano deposit was found by accident last year and is the only major guano discovery in years. The material will be sent to the Dixie plant here for packaging and marketing after milling in Texas.

The story of the beginning of guano dates back to the ancient Incas of Peru who built their empire on the agricultural riches from their supply. It was valued so highly that the death penalty by law was obligatory for anybody killing a guano bird.

In 1850 President Millard Fillmore said, "Peruvian guano has become so desirable an article to the agricultural interests of the U.S. that it is the duty of the government to employ all means properly in its power for the purpose of causing that article to be imported into the country at a reasonable price. Nothing will be omitted on my part towards establishing this desirable end."

Officials of Dixie Fertilizer said the company has exclusive rights to over 300 million pounds of high grade bat guano, retail market value of which is $1 per pound.

The Dixie Fertilizer plant at Meridian now nearing completion at an estimated $300,000, is expected to be in full production by the first of the year.

It is the first plant of its kind in Mississippi and will manufacture organic fertilizer using sludge from Meridian's new sewerage treatment plant as the primary base material. This method will provide approximately 30% of the material used in the manufacture of the type of fertilizer to be produced by the company.

According to J. A. Hill, Jr., president of the Dixie company, it will be one of the largest plants of its kind in the country. The new plant has a capacity of 120,000 tons of the finished product annually.

NEW DISTRIBUTOR

GLANDORF, OHIO — Nienberg Supply Co., Glandorf, is a new distributor for Highway Equipment Co., Cedar Rapids, Iowa. The Nienberg company handles the firm's line of fertilizer and lime spreaders.

Sale of Mississippi Plant Confirmed by Buyers

GULFPORT, MISS.—Sale of the property of the old Gulfport Fertilizer Co., consisting of about 32 acres of land and buildings, to H & F Engineering Co. of Gulfport was confirmed Nov. 26.

The fertilizer company was Gulfport's oldest industry in continuous operation, having been originally established in 1904 as the Gulfport Cotton Oil, Fertilizer and Manufacturing Co. using "Panama" as the trademark for its mixed fertilizer.

Later the company became the Gulfport Fertilizer Co. of Georgia, was changed by new ownership to the Gulfport Fertilizer Co. of Mississippi in 1925; was sold to the Davison Chemical Co. in 1928 and became known as the Davison Gulfport Fertilizer Co. In 1935 it was repurchased by the Mississippi corporation and continued from then on as the Gulfport Fertilizer. Co.

Its officers were Dennis Parker Cranberry, president; G. E. Covington, vice president, and Monroe Lindsey, secretary and treasurer. Until the early 1950's it operated its own sulphuric acid plant.

H. D. McLemore, president of the H & F Engineering firm, said concerning the acquisition of the property, "there have been a number of things proposed, but nothing definite has been decided."

Bemis Buys Interest in Systemation Packaging

ST. LOUIS, MO.—Bemis Bro. Bag Co. has acquired a substantial interest in The Systemation Corp., a St. Louis area firm which specializes in the development of integrated and automated packaging systems and machinery, F. G. Bemis, Jr., has announced.

The Systemation Corp. is a new organization which has made contributions to advanced packaging systems and equipment in several industries. Mr. Bemis said this acquisition will strengthen the company's diversification program into allied packaging fields and "supplement the assistance we already provide industrial customers through our packaging service organization."

Mr. Bemis said that the added financing and administrative support which will be provided through his company's arrangement with Systemation will give the smaller organization a maximum opportunity to exploit its growth potential.

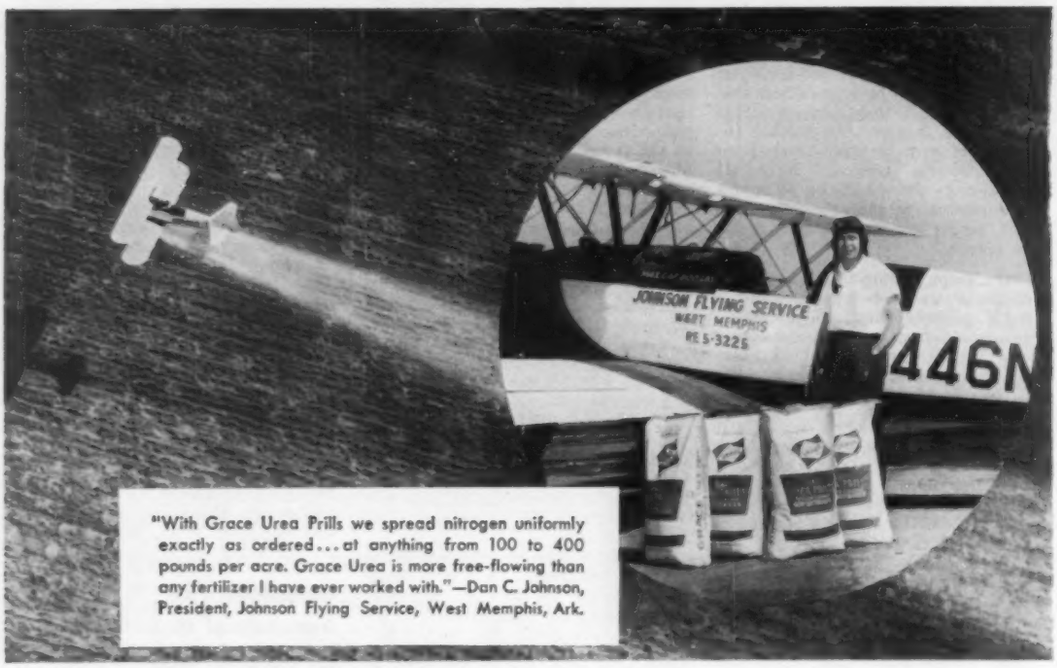
The company, with plant and office headquarters in suburban Chesterfield, Mo., was founded in 1958 by its president, Philip H. Lanham. In addition to creating total packaging systems, his company has developed advanced packaging machinery, including several pieces of equipment in the case setup and loading field which are regarded as substantial "breakthroughs" in automated packaging operations.

Trends, Test Results On Weed Control Subject of Meeting

MEMPHIS — Latest trends and test results on use of herbicides to control weeds in the South will be discussed during the 14th annual Southern Weed Conference Jan. 18-20 in St. Petersburg, Fla.

The program will include sections on weed control in specific crops, control in pastures and turf, brush and weed control in non-crop areas, fundamental aspects of weed control, control of specific weeds, horticultural weed control, aquatic weed control, extension aspects of control, public health aspects and new developments.

Chairman of the program for the meeting is Ellis W. Hauser of the Georgia Experiment Station, Experiment, Ga.



"With Grace Urea Prills we spread nitrogen uniformly exactly as ordered... at anything from 100 to 400 pounds per acre. Grace Urea is more free-flowing than any fertilizer I have ever worked with."—Dan C. Johnson, President, Johnson Flying Service, West Memphis, Ark.

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Aerial Application of

GRACE UREA PRILLS

on wheat, oats, milo maize, pasture

Grace Urea Prills are especially suitable to application by airplane . . . on wheat, oats, milo maize and pasture as well as on rice and other crops. The free-flowing, non-caking round prills can be put down evenly and uniformly as required. This saves money and does a better job of fertilization.

Other advantages of aerial application are: Stands are not injured and the soil is not compacted. Fertilizer can be applied at any time . . . even when moisture is in the ground. And, because Grace Urea Prills is 45% nitrogen, there are less bags to handle and fewer plane loads to cover a given area.

But whether it is applied "up-in-the-air" or "down-to-earth," your customers will find it pays to use the fertilizer that contains more nitrogen per pound than any other solid fertilizer—Grace Urea Prills.

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SPECIAL MERCHANDISING SECTION

BETTER SELLING

MARKETING NEWS AND FEATURES

'Everything in Pest Controls' Is Firm's Motto

A manufacturers' agent which engages in "everything in pest control" plus a thorough-going fertilizer application business is characteristic of the Orchard Supply Co., Sacramento, Cal. This business, operated by Robert L. Moore, manager, and his brothers David and Richard, has been in operation for 41 years. Their late father, who was known by the appropriate name of "Spray" Moore, founded the business in 1919. Son Robert took it over in 1950 and has operated it with his brothers since that time.

The business started as a pest control unit for orchard insects on peaches, prunes, apricots and other orchard crops, but now mostly pears are treated. In addition to this, corn, tomatoes, sugar beets and safflowers are treated.

The firm does "everything in pest control." By this, Manager Bob Moore says he means termites in residential areas and fumigation of rice and grain storage. "We take care of all bug problems," says Mr. Moore.

In addititon to pest control mentioned above, the firm owns an amount of fertilizer application equipment worth an estimated $320,000. This includes equipment for application of NH_3, aqua ammonia, dry granular fertilizer and tractor-mounted sprayers for herbicides. They also have four truck-mounted high pressure applicators for weed control spray.

This type of service is a must in modern agricultural chemical merchandising, according to Mr. Moore. The firm operates what he calls the "Anchor Custom Service," and "Shell NH_3 Service," which he says gets their names from the brands of fertilizer applied by the firm. But the Orchard Supply Co. is also agent for a number of fertilizer manufacturing

Turn to **PEST CONTROL**, page 16

CUSTOM SPRAY operations are a major part of the services performed by Orchard Supply Co., Sacramento, Cal. Here Bob Moore, manager of the company (left), supervises shade tree spray job being handled by Louis Daniels, foreman. The Orchard Supply firm says that it is geared to handle any type of pest control problem and has on hand at all times, adequate modern equipment to make good its claim.

Texas Dealers Cash in on Truck Farms During 'Convincing' Job

By **RUEL McDANIEL**
Special Croplife Writer

Around Mathis, Texas, the soil is rich and most of it is planted to cotton and grain. Mathis cotton and grain farmers didn't think their soil needed much, if any, fertilizer.

That is, they did not think so for a long time. Now they are not so certain. A disturbing element has interfered with their thinking. The element is D & W Feed & Seed, owned by Bill Watson and Glen Dorris. Mr. Watson manages the store and Mr. Dorris farms and handles other agricultural enterprises. Some of the things he and Bill Watson have done on the Dorris farm with fertilizers has been a disturbing factor among the die-hard neighbors who "don't believe in fertilizer." Extensive experiments on the Dorris farm have shown the need and practical value of fertilizers on even the rich land around Mathis.

In the meantime, however, Bill Watson figured that it was poor business to wait around until he and his partner could sell the larger cotton and grain farmers on fertilizer. The company needed some fertilizer business at once. So he concentrated to a large extent on a nearby area where there is considerable vegetable growing. Here he built a volume that totaled about 150 tons last year, mainly in small orders, but nonetheless profitable.

He got this business by visiting with these small truck farmers and talking fertilizers. He offered to have soil samples tested for anyone who wanted tests; he recommended specific soil treatments to the best of his ability to those who did not want their soils tested, and he offered to deliver fertilizer in any amount to the vegetable growing area.

The small orders run into profitable volume because some of the customers grow several vegetable crops a year, providing some demand for fertilizers practically every month. Because the orders are small, price generally is not a motivating factor.

"In the meantime," Mr. Watson explains, "we are constantly working on the large-scale cotton and grain farmers. We sold them about 350 tons last year, which is only a fraction of the potential volume around here. But every time we induce a farmer to try fertilizer we not only sell him more the next year but he helps us to sell his neighbors."

He tried pushing soil testing as a means of convincing the large scale farmers that their land needed treatment but the average farmer was not impressed by what the tests revealed.

When the test showed one farmer that he needed 2,000 lb. of a certain

Turn to **DEMONSTRATIONS**, page 16

BILL WATSON (right), manager of the D&W Feed & Seed in Mathis, Texas, talks to a vegetable farmer about merits of regular fertilizing. Truck farmers buy 150 tons of fertilizer from the company annually.

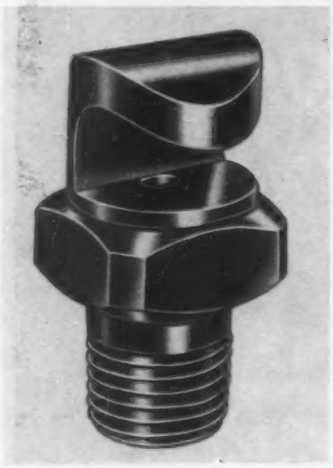
WHAT'S NEW

IN PRODUCTS · SERVICES · LITERATURE

To obtain more information about items mentioned in this department simply: (1) Clip out the entire coupon in the lower corner of this page. (2) Circle the numbers of the items of which you want more information. Fill in the name and address portions. (3) Fold the coupon double with the return address portion on the outside and fasten the edges with a staple, cellophane tape or glue. (4) Drop in the mail box.

No. 6112—Nylon Nozzle

A nylon nozzle designed primarily for the application of balanced fertilizers is being offered by Delavan



Manufacturing Co. The nozzle is a deflector type and delivers a fan spray. It is available in sizes ranging from five GPA through 100 GPA. For complete information, check No. 6112 on the coupon and mail.

No. 6116—Leasing Study

A study which analyzes the merits and demerits of the main types of truck fleet leasing plans, and compares costs with company ownership of truck fleets, has been made available by the Foundation for Management Research. Called "Truck Fleets: Lease or Buy? An Analysis of Truck Transportation Costs," the study is the third in a series developed by the foundation. The study is based on data gathered from corporations operating 12,817 company-owned trucks, and the records of national truck leasing companies. Four complete tables are included in the study, which analyze company-owned fleet costs and compare those with leasing. For copies, check No. 6116 on the coupon and mail.

No. 6114—Fertilizer Applicator

A pull-type fertilizer applicator for non-pressure nitrogen or complete liquid mix fertilizers has been announced by Schelm Brothers, Inc. The applicator has no pump or air compressor to maintain, the company says, and the rate of flow is main-

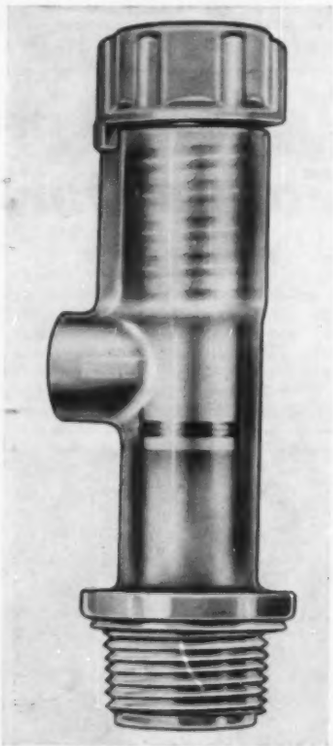
tained regardless of the material level in the tank. Application rates range from 5 lb. to 7,500 lb. total weight of material per acre—or any amount in between, at travel speeds up to 15 mph, the company says. The units are available with PVC plastic booms in 18, 24 and 33 ft. lengths as well as the company's standard five-knife tool bar for sub-soil applications. Details can be secured by checking No. 6114 on the coupon and mailing.

No. 6118—Crabgrass Killer

Introduction of "Dow Crabgrass Killer" has been announced by the Dow Chemical Co. The material is a granular product based on Zytron, a weed control compound discovered by the company which shows activity in selective control of crabgrass in turf. It is designed for application in the spring before crabgrass sprouts. Two package sizes will be available: an 8 lb. bag to cover 1,000 sq. ft., and a 20 lb. bag to cover 2,500 sq. ft For more information check No. 6118 on the coupon and mail.

No. 6117—Polyethylene Drum Faucet

Rieke Metal Products Corp. announces a polyethylene ¾ in. drum faucet. Features, according to company literature, include straight threads to eliminate stresses, a sealing head on the shoulder of the fau-



cet which allows orientation in any position and eliminates tight fit stresses, longer dispensing throat for easier filling into small vessels, large pitch on the stem and body threads permit fast opening and closing of the faucet and it is molded from a virgin polyethylene which has been tested and approved as being the best stress-crack resistant polyethylene known for this application. Full details can be secured by checking No. 6117 on the coupon and mailing.

No. 6113—Aluminum Container

Kaiser Aircraft & Electronics, division of Kaiser Industries Corp., has announced an all-purpose reusable aluminum container for shipping and in-plant handling of bulk materials. The company says the container can be shipped by truck, rail, ship or air and is easily handled with standard

hauling equipment. Called the "Nest-A-Bin" the units are available for all types of liquid in capacities of 440, 550 and 660 gal. Units for granular materials, with cone-shaped tops and 22½ in. discharge opening, are available in capacities of 54 and 70 cu. ft. All have 52½ in. diameter and disassemble into two units when empty. For more information, check No. 6113 on the coupon and mail.

No. 6115—Coding Machine

Thomas Engineering Co. announces the Teko Model 100 series of coders and printers designed for attachment to packaging machines or powered conveyors of all types. According to the company, they synchronize with the action of the parent machines, printing onto boxes, cartons, kraft paper or other porous or

semi-porous surfaces. Inking of the coders is done by a roll of "Porelon" solid ink. This Porelon roller, a self-contained inker, replaces fluid inks, solvents, fountains, felts and the maintenance connected with such items, the company says. Details can be secured by checking No. 6115 on the coupon and mailing.

Christmas Tree Dealers Warned of Gypsy Moth

TRENTON, N.J.—A marked build-up and spread of gypsy moth populations in many areas of the northeastern U.S. this season greatly increases the hazard of spreading this destructive pest through the shipment of Christmas trees and holiday greens, warned the U.S. and New Jersey Departments of Agriculture.

The public, and dealers in Christmas trees and greens, are reminded that such products must be inspected and certified before they can be shipped or carried from any area regulated under the quarantine.

Send me information on the items marked:

- ☐ No. 6112—Nylon Nozzle
- ☐ No. 6113—Aluminum Container
- ☐ No. 6114—Fertilizer Applicator
- ☐ No. 6115—Coding Machine
- ☐ No. 6116—Leasing Study
- ☐ No. 6117—Polyethylene Drum Faucet
- ☐ No. 6118—Crabgrass Killer

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CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS PERMIT No. 2
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BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

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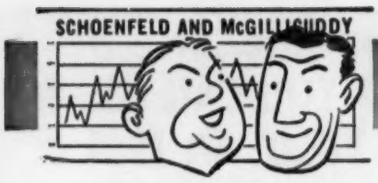

OSCAR & PAT

By Al. P. Nelson

When Oscar came back from lunch he hung up his four-year-old felt hat and five-year-old stormcoat, brushed back the few wisps of hair that remained on his head and then headed for his desk. On the way he passed the desk of his partner Pat McGillicuddy. The desks of the two partners were back to back so that when both were at their desks they faced each other.

Each could observe what the other was doing and each could criticize the other's actions and use of time—either openly or in thought. And on a big safe on thick wheels in a corner rested Ann Hydrous the black cat. She always slept with one eye open for she never knew when there might be an explosion from one of the partners about some friction in their business. And Ann Hydrous wanted to be alert so she could jump fast.

Oscar now spotted a stack of neatly typed letters on Pat's desk awaiting his signature.

"Ach" he grunted grudgingly. "That Irisher has now come to his senses. He at least is writink letters to collect bills even if he is lazy in callink on farmers to get the money."

Tillie Mason the plumpish bookkeeper who nursed an ulcer also an intense love for Dave Schuster a steady for nine years who had failed to propose said nothing. But she seemed apprehensive.

Oscar picked up one of the letters, read it, then roared, "Ach vat is this? This Irisher he writes to Halvor Olson congratulating him for becoming a grandfather?" He looked critically at Tillie. "And that is the way he uses your expensive time writink notes like this? What has being a grandfather got to do with sellink fertilizer and collectink for it?"

Oscar picked up another letter. "Ach and here's one to Mike Rooney sayink he is happy his son Manion got the best grade in school last month. Himmel, what is the matter with that Irishman. And our 4¢ stamps he wastes on this schtuff yet."

He slapped one hand hard against his forehead, then thumbed briefly through the letters. Each was a letter of congratulation to some farmer on some achievement by himself or his family.

"Not one collection letter!" moaned Oscar. "That Irishman is schlippink more yet still. Fifteen letters to farmers and he does not ask for money." He began to count "one, two, three, six—ach, six of them owe us money for fertilizer. I will fix them. I'll put the amount each farmer owes us on the bottom of each letter. That will be a hint to them."

"Oh, don't " spoke up Tillie, reaching for an ulcer powder. "Pat will be angry, Oscar."

"Angry?" echoed Oscar, his face quite ruddy with rage. "What do you think I am? Happy—over such foolishness?" He looked at the clock. "That Irisher will be back from lunch soon, I hope. Then I will tell him a thing or two. We haf lots of better things to do for our business than sendink out foolish letters like this."

"But Pat believes they build good will," put in Tillie. "And perhaps they do."

"We don't care anythink about buildink good will!" shouted Oscar. "All we care about is sellink fertilizer and collectink for it. Leaf the buildink of good will to somebody else—ministers, women's clubs and organic farmers, yah. Not us. We are in business to make money. The more we monkey aroundt with things that don't help us sell and collect, the more money we lose."

Oscar went on and on raving about business men—like Pat—who did everything under the sun but stick to business. He quoted U.S. Department of Commerce statistics of how many retailers failed because they did not study their business and cut costs. Oscar also cited all the business depressions since 1893—he had memorized them a long time ago—and how every business should be prepared for the next one, and the way not to prepare was to go on spending money like Khrushchev at a Soviet embassy party.

It was at this point that tall Pat McGillicuddy walked in, his lean face ruddy from the cold fall air.

"You," shouted Oscar, pointing his finger at his partner. "You are getting crazier effery day. Letters to farmers congratulatink them on everythink they do! McGillicuddy, who do you think we are—the U.S. Post Office Department—spendink so much money on stamps?"

"So that's it, eh?" said Pat calmly, hanging up his grey storm coat. "Have you ever heard of good will, Oscar?"

"Good will? Ach, what's good about it when half those snobblers owe us money. And then you go spendink a stamp on them yet."

"A business doesn't exist for today only, Oscar," explained Pat. "It's in business for weeks, months and years. You have to show people you are friendly, and interested in them and their problems and achievements. All big business concerns try to build good will by letters and other means."

"We are not bik!" Oscar roared. "And if you keep on spendink money like a big schot, we will not even be schmall. We will be kapoot!"

"You exaggerate," Pat said sharply. "No business today can stop promoting and selling and building good will. Competition and the cost of doing business won't allow it."

"You can't schtop collectink, either," Oscar growled. "Andt you don't have to keep a hundred lights on all offer the warehouse and schtore, with nobody aroundt. Andt we don't haf to have such fancy stationery and so much of it. Andt we advertise too much."

"Advertise!" Pat picked up a clipping from his desk. "The University of Wisconsin agriculture college made a survey on advertising recently and it showed that the feed and fertilizer firms that advertise the most do the most business."

"Ach, those professors!" Oscar said. "They are too absent minded. It ain't

Turn to **COLLECTIONS**, page 16

TYLER LEADS THE WAY . . .

WITH THE F-2*, HIGH CAPACITY, DO-IT-YOURSELF FERTILIZER SPREADER

WITH A CAPACITY OF UP TO 4 TONS, THE TYLER F-2 WILL SPREAD UP TO AN ACRE PER MINUTE!

The Tyler F-2 Gives You . . .

★ Rugged Construction

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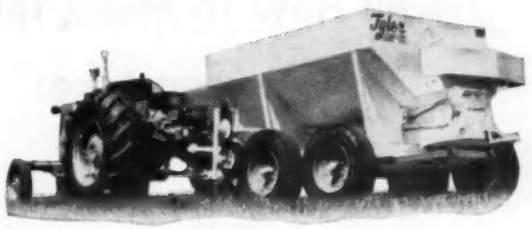

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★ Easy, Quiet Operation

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When YOU Buy Fertilizer Spreading Equipment Be Sure It's

TYLER-MADE!

Dealer & Distributor Inquiries Invited

Specifications:

Body Weight—1,430 lbs.
Hopper Dimensions—60"x84"
Wheel Track—74 inches
Axle Rating—8,000 lbs.
Type Axle—Tandem torsion spring
Fans—Angled twin 19" dia., PTO driven
Wheel Bearing—Sealed Timken bearing
Capacity—2½ tons
With Body Extension—19 in., 4 tons
Conveyor—7½" mesh galvanized steel, positive ground drive
Industrial Type, sealed with flush fitting bearings—Stainless steel optional
Spread Pattern—Approximately 45 ft.
Spread Capacity per hour—30-60 acres
Field Speeds—4 mph, 30 acres per hr.; 12 mph, 60 acres per hr.; 18 mph, 90 acres per hr.
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Successful Farming
Farm and Ranch.
October 1960
Enter Spencer's Huge "Soil Fertility" Sweepstakes!
WIN ALL THE PLANT FOOD YOU CAN USE TO PRODUCE TOP YIELDS IN 1961
. . . OR ONE OF THE 150 OTHER PRIZES!
BIG GRAND PRIZE
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Easy To Enter . . .
Nothing To Buy . . . Read Full Details Now!
ADD AS MUCH AS $12,500 TO YOUR INCOME
25 PRIZES
$100.00
50
75
$100 WORTH OF FERTILIZER
You Can't Win Unless You Enter! Fill Out Your Sweepstakes Entry and Mail It Today!
SPENCER

These three leading farm magazines will dramatically introduce the Spencer Soil Fertility Sweepstakes in January. This easy-to-enter contest is designed to emphasize the value of fertilizer, and to bring new customers in to retail fertilizer dealers. Pictured above is the big 2-page magazine ad. You can tie-in without cost by using the free display materials at right:

What Is Your Stake In This Big, Unique

Here's How To Make This Huge "Spencer Soil Fertility Sweepstakes" Pay Off For You This Spring:

Authorities estimate that farmers are buying only about ⅓ as much fertilizer as they could profitably use. In other words, the fertilizer industry today is missing out on ⅔ of its potential sales!

We asked ourselves what Spencer Chemical Company can do to help fertilizer dealers reach this vast untapped market. Our answer is this new and totally different kind of promotion that will benefit *all* fertilizer dealers:

A Springboard To New Sales

Spencer's huge "Soil Fertility Sweepstakes" is created to help remove the greatest single barrier to fertilizer sales — the farmer's lack of understanding about fertilizer and the benefits it offers him. Overcome this obstacle, and today's rate of fertilizer sales can be doubled or tripled!

Built around thousands of dollars worth of prizes, the Spencer Soil Fertility Sweepstakes gets right to the heart of the problem by:

1. Creating a new awareness among farmers of the extra profits they can gain by using recommended amounts of fertilizer.

2. Requiring the many thousands of farmers who enter the Soil Fertility Sweepstakes to pledge that they will consult with their dealers about their 1961 fertilizer needs.

Your potential customers will find it easy to enter this giant Sweepstakes—nothing to buy or write. All they have to do is pledge to consult

SPENCER®

The Sweepstakes starts in your store when you set up this action-getting counter card. It invites your customers to enter by providing all the necessary information plus a pad of stamped, self-addressed entry blanks. Farmer entrants will be awarded 151 valuable prizes!

Identify your store with this powerful promotion by displaying this attractive Spencer Soil Fertility Sweepstakes window banner. Attract those new customers who will pledge to consult with their fertilizer dealer this spring! Be sure to read all the details below.

Spencer Fertilizer Contest?

with *you* about their fertilizer program for the coming season.

It Costs You Nothing To Cash In On This Sweepstakes!

As a fertilizer dealer, you can become identified with this big promotion without investing a cent. Spencer is offering all dealers in its sales territory the colorful Sweepstakes display materials shown above absolutely free. These are available from your Spencer representative, or by writing directly to Spencer at the address below.

Don't miss this great opportunity to increase your sales by helping your customers plan more profitable fertilizer programs. And, if one of your customers wins the Grand Prize, *you* make the big sale — up to $2500 worth of fertilizer in all. Tie-in with the Spencer Soil Fertility Sweepstakes right away!

To bring in new customers for fertilizer, the "Spencer Soil Fertility Sweepstakes" requires each entrant to pledge that he will consult with his dealer concerning his 1961 fertilizer needs. Not only does this provide a great opportunity for you to sell to new customers—you may be the lucky dealer who makes the "Grand Prize" sale of up to $2500 worth of fertilizer!

"Don't just fertilize . . . Spencerize"

SPENCER CHEMICAL COMPANY

Dwight Building
Kansas City, Missouri

Producers of 4 Nitrogen Spencerizers for Hungry Crops

FARM SERVICE DATA

EXTENSION SERVICE REPORTS

Fertilization of Coastal Bermuda grass with nitrogen during the last week in August can result in a high yield of hay when baled six weeks later in October.

During several years of research at the Suwannee Valley Agricultural Experiment Station near Live Oak, Fla., applications of 50 lb. of nitrogen from 150 lb. of ammonium nitrate per acre have produced Coastal Bermuda grass hay averaging from 6 to 7% total protein.

Twice this amount of nitrogen fertilizer boosts the hay protein content to 8 or 9%.

When hays cut in October from either of these rates of fertilization were fed as the only feed except a mineral supplement to yearling heifers weighing 800 lb., gains during winter months were good, heifers came into heat in the spring and were bred normally.

When the grass was cut for hay in December, after killing frosts in November, only a small decline in total protein content of the hay was observed. However, scientists report the digestibility of the protein was reduced.

When heifers were fed hay cut after the frost from fields fertilized with 50 lb. of nitrogen per acre, weight losses resulted. But heifers fed frosted hay from fields fertilized with 100 lb. of nitrogen per acre, gained from 0.2 to 0.4 lb. per day and their reproduction was normal.

By proper fertilization in August, pasture grass can be reserved for grazing after frost in December with good animal performance.

Although nutritional aspects of fall fertilization for hay are bright, scientists say the engineering problem of getting grass from the field to cattle with minimum labor and cost is yet to be solved.

★

Farm soils should have a "pantryful" of nutrients to feed growing crops, if farmers are shooting for high income yields, according to Dr. Orlo L. Musgrave, Ohio State University extension agronomist.

Dr. Musgrave says accurate soil test can help give information about the plant food a soil needs to produce profitable crops.

"The selection of the proper fertilizer depends on a knowledge of the nutrient requirements of the crop and the nutrient-supplying power of the soil on which the crop is grown," he points out in a statement summarized in Chicago by the Midwest division of the National Plant Food Institute.

"When a soil does not furnish adequate quantities of nutrient elements necessary for normal development of crops, it is essential that required amounts be supplied," he said.

Dr. Musgrave says a well-balanced fertility program should involve two definite stages: 1—Building fertility reserves to a reasonably high level; 2—Maintaining the fertility level once a high level has been reached.

He reports that Ohio farmers have doubled the number of soil tests taken in the past five years. He estimates that 53,000 soil samples were processed in 1959, compared with 26,000 in 1955.

★

Half of the money spent for fertilizer by South Carolina farmers is lost because of excessive soil acidity.

Dr. H. P. Cooper, dean emeritus, Clemson College Agricultural Experiment Station, says that 80% of the cropland in the state is too acid for efficient fertilizer use.

"Fertilizer nutrients are 'tied up' and made unavailable for plant use because of this high soil acidity. Not only are farmers losing money on their fertilizer investment, but they are also denied the rewards of higher crop yields."

Dr. Cooper made this significant observation on the basis of soil acidity determinations of 2,250,000 soil samples from South Carolina farms. The availability of fertilizer nutrients for crop use is profoundly affected when soils become too acid.

Most farm soils of the state were described as "strongly or moderately acid," and some "very strongly acid."

Dr. Cooper said that a soil test gives the most reliable appraisal of the soil conditions. Taking the soil sample in late summer or fall provides the most reliable index of the soil reaction for the next growing season. It takes about six months for limestone to correct acid soil conditions.

An acre of alfalfa removes from the soil 112 lb. of calcium per year; tobacco removes 54 lb. and cotton 30 lb. A long history of cropping without putting back this essential element has contributed to the unfavorable acid conditions of the soils.

"Farmers in the state are now spending approximately $40,000,000 annually on fertilizers, and much of this investment is wasted because most of our soils are too acid for efficient use of fertilizer and for the production of profitable crop yields. We are at present using only 10% of the lime necessary to get the best return from this investment in fertilizer," Dr. Cooper said.

★

The best way to obtain efficient economical production of crops on East Texas and Coast Prairie farms is to make sure the lime and fertilizer team is in balance. According to W. F. Bennett, extension soil chemist, fertilizer and lime work together in a soil to produce good crops. Neither is as effective alone as the two used in the right combination.

Mr. Bennett points out that about 75% of the soils in East Texas, and about one third of the Coast Prairie soils, need limestone for most profitable crop production. Soils in the Coast Prairie which need lime are usually the lighter textured soils.

Applying fertilizer to soils which need lime is somewhat like adding gasoline to a car which needs oil. It may work, but it will surely work better if the other ingredient is present. Fertilizer and lime work hand in hand to establish a chemical balance within the soil, and this balance will help plants make efficient use of the available nutrients.

A soil test is the first step in putting this team into action. The soil test will detect any deficiency of nitrogen, phosphorus, potassium or calcium. Lime will supply the needed calcium, Mr. Bennett explains.

Lime can be applied any time during the year, but it is generally desirable to get the limestone into the soil several months prior to planting a crop. Therefore, for spring planted crops, limestone should be applied in the near future.

★

Dairy and beef cattle can have a week to 10 days earlier grazing if farmers top-dress grass pastures early in the spring with high nitrogen fertilizer, says Prof. C. J. Chapman, University of Wisconsin extension soils specialist.

"The nitrogen, plus the phosphate and potash in the fertilizer, will not only produce a lush, early growth of grass, but will extend the pasture season into late July," says Prof. Chapman, in a statement summarized by the National Plant Food Institute's Midwest division.

"And even though dry weather stops the growth, the uneaten dry grass still has a high feeding value and will continue to furnish good feed for livestock during the summer drouth period."

Prof. Chapman lists these other direct benefits from fertilization of pastures:

1—Top-dressing with fertilizer mixtures such as 16-8-8, 10-10-10 or straight nitrogen backed up with phosphate and potash fertilizer, has proved economical and fills an essential need on livestock farms. Such a program is simple and easy to carry out.

2—The fertilizer helps thicken the turf. Thus it increases the soil's water-holding capacity and slows down losses by run-off.

3—Fertilized pasture chokes out many types of weeds and reduces damage by grub infestations.

4—Farmers get quick and direct returns on the dollars they invest in fertilizer.

"Soil tests are the most accurate means of pre-determining the soil's need for minerals—including the ratio of phosphate and potash in the fertilizer and the amount to apply per acre," Prof. Chapman says. "If a pasture soil is acid, such fields should be limed with a finely-pulverized grade of agricultural lime."

★

Most insecticides can be stored by farmers for long periods of time without deteriorating, but a few simple steps can help them keep leftover supplies in good condition until the next season.

Insecticides should be stored in the original package or container. If the insecticide is stored in an unidentified container, the original label or a suitable, easily read tag should be put on the container. This procedure is recommended by Wayne J. Colberg, NDAC extension entomologist.

"Store the insecticide in a safe, dry place. This is especially important when the dust or wettable formulations are involved. Be sure it's safely locked away from children, livestock and pets," he says.

Whenever possible, the farmer should prevent freezing of the emulsifiable concentrates. Frequent freezing and thawing of the insecticidal concentrate may bring about a breakdown of the emulsifier. When this happens there is a good chance that the oil carrier (solvent) and the active ingredient will separate, and the insecticide will need special handling before it can be used.

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Credit Is Boon to Business, But Often Is Abused, Says University Economist

By JAMES C. TOTTEN
Michigan State University

EAST LANSING, MICH.—A Michigan State University economist has admitted that credit helps make the wheels of business go around, but added that credit is sometimes much abused all the way along the line—from manufacturer to the farmer.

"There is no such thing as free credit," said Elton B. Hill, of the MSU department of agricultural economics. "Someone has to pay in one form or another, and it usually is the ultimate consumer."

Extending credit, said Mr. Hill, appears to be one of the headaches of some phases of the pesticide business. The big question is, he queried, how can a manufacturer, a wholesale distributor or jobber, or a dealer put sales and credit on a sound business basis?

Mr. Hill spoke to nearly 100 pesticide dealers, distributors, manufacturers and sales personnel from Michigan and surrounding states at a Michigan Agricultural Pesticide Conference Nov. 1-2 at Michigan State University.

The problem, he outlined, is both industry's and the dealer's. It is probably true, he said, that if 1) dealers were more careful in extending credit to their buyers and in making their collections on time, and 2) then paid the wholesaler on time, that the past due account problem would largely be whipped.

Mr. Hill admitted that he really didn't know who is getting hurt most along the credit channels, but added that he thought almost everyone who handles pesticides, particularly for use in fruit and vegetable promotion, is getting hurt more or less.

We are in an era of specialization, he declared. Each of us has an important job to perform—

a) Farmers need pesticides to efficiently produce their products.

b) Dealers need to sell to stay in business.

c) Processors need the product.

d) Credit is needed to make the deal possible in most cases.

Only a few farmers are able to finance their operations from their own funds.

From a farming standpoint, said Mr. Hill, credit is about 10% getting the money, and 90% management in paying it back.

Most farmers in this day of farm reorganization and expansion need credit and lots of it, he contended, although they have many sources of credit.

As two major guides to making sound loans, Mr. Hill advised: 1) the financial statement of assets and liabilities, and 2) the operating statement showing sources and amounts of income and expense.

Mr. Hill offered some suggestions for pesticide dealers to consider in setting up credit operations. First, he said credit should not be extended on a piecemeal basis. Dealers should sit down with their growers in advance and work out a budget for their credit needs for the year.

"Second," Mr. Hill advised, "farmers should be encouraged to pay cash for their supplies. On the basis of past procedure, some farmers have come to expect 'free' credit—which is just not realistic. Somebody pays for the use of credit in one way or another, and it is usually the ultimate user."

A 5% discount by dealers for cash payment of supplies purchased by growers would make it worthwhile for a grower to borrow the necessary funds from a credit agency for a six to nine month period, Mr. Hill said.

And some successful dealers make a charge of 1% per month for carrying accounts beyond 30 days, he revealed. This is, he stated, a discount in reverse.

But most manufacturers and wholesalers make special discounts to dealers for cash payments for early deliveries, he said. This procedure can also be used to make it worthwhile for buyers to borrow money if needed and then pay cash, he added.

Mr. Hill also emphasized that credit terms are as important as is the amount of credit extended. Some wholesalers selling to big producers in truck lots, he said, have the payments due 30 days after harvest—which appears to be reasonable.

"If a dealer is desirous of reducing his accounts receivable in the years to come," Mr. Hill maintained, "it will be necessary for him to have a charge on open accounts somewhat higher than the current interest rates charged by local credit agencies. Either the cash discount system or the dealer credit-charge system should help in reducing accounts receivable, provided the grower was worthy of credit in the first place and the repayment dates were at the time a farmer was best able to pay.

"In the final analysis," Mr. Hill said, "dealers will find it good business to be on good terms with the folks who are operating the credit agencies in their area—they could be of real help."

'TAKE THE PLEDGE?'

KANSAS CITY, MO.—Many farmers will "sign the pledge" this winter if Spencer Chemical Co. has anything to do about it. For the farmer, the pledge is a simple one—to consult his fertilizer dealer for advice in planning a profitable fertilizer program. Spencer hopes to be responsible both for producing greater interest in the use of fertilizer and in promoting more dealer-farmer contacts.

To encourage farmers to sign this "profit pledge," Spencer is sponsoring what it calls a "Soil Fertility Sweepstakes." The farmer's signed pledge card mailed to Spencer enters him in a sweepstakes drawing which has as its top prize all the fertilizer his land can profitably use in 1961.

The winner will have his plant food needs analyzed by professional agronomists and will receive his total requirements in any form he specifies, up to a value of $2,500. Spencer estimates that this prize can actually be worth up to $12,500 since it says crop records show that a dollar invested in fertilizer can return from $3-5 in extra profit. Another $2,500 in fertilizer will go in $100 prices to the next 25 names drawn.

Spencer is currently putting the "profit pledge cards" on dealer counters and will officially open its sweepstakes in January with 2-page advertisements in major farm magazines. The pledge card, which will also appear in the advertisements, reads: "Having read the information on these pages, I hereby pledge to consult with my fertilizer dealer to seek his expert advice in planning the most profitable fertilizer program for my farm this year."

Spencer hopes through this dramatization to create a new awareness of the profits farmers can gain by using recommended amounts of fertilizer.

Only farmers and farm operators are eligible for this plant food promotion which closes at midnight on Feb. 15, 1961.

Cotton Council Meeting Plans Announced

GREENVILLE, S.C.—The 1961 Beltwide Cotton Production-Mechanization Conference, sponsored by the National Cotton Council and other groups, will be held here Jan. 11-13 at the Poinsett Hotel. J. D. Hays, Huntsville, Ala., cotton producer, is chairman of the steering committee.

Some 600 federal and state research and education workers and representatives of cotton and allied industries are expected to attend the conference. Speakers will discuss cotton quality problems; agricultural chemicals; mechanical harvesting; irrigation; defoliation, and insect, weed and disease control.

Pest Control Meeting

LEXINGTON, KY.—A one day program for the purpose of discussing current recommendations for the control of pests will be held at the Agricultural Experiment Station Building, University of Kentucky, Lexington, on Jan. 24, announced Lee H. Townsend, head of the department of entomology and botany.

TAX LOOP-HOLE

DENVER, COLO.—Attention was drawn in Colorado to a little known law which offers farmers and ranchers clear-cut opportunity for deducting the cost of fertilizers in income tax figuring.

Stephen H. Hart, attorney for the National Live Stock Tax Committee, Denver, said that the legislation was almost obscured among final bills passed during the abbreviated session this summer.

The new amendment to the Internal Revenue Code provides that a farmer or rancher may elect to treat as ordinary business expenses those sums which are paid for or incurred in the purchase of fertilizer, lime, ground limestone, marl or other materials to enrich, neutralize or condition land.

The measure also includes the costs of application of such material.

Mr. Hart said that the legislation resulted because some revenue agents were attempting to require farmers and ranchers to capitalize the cost of fertilizers and other land conditioning material. This new law, according to Mr. Hart, precludes revenue agents from taking such a position in future interpretations of the complicated code.

Mr. Hart advised ranchers and farmers to check with their local attorneys or tax experts for details of the new law and its application to individual situations.

RESEARCH GRANT TO POLAND

WASHINGTON—A grant of $6,176 has been made to the Institute of Plant Protection, Poznan, Poland, for research on biological control of insect pests, the U.S. Department of Agriculture announced. The grant (339,700 Polish zlotys) will support a five-year study of the way protozoa produce infections in insects.

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NEW LEADER L-52S SPREADER

- 25 H.P. Engine drives twin 24" spinners for widespread applications!
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Mail coupon for L-5 2S literature and a copy of "Your Land Is Different" a booklet designed to help you sell more bulk fertilizer.

PEST CONTROL

Continued from page 9

firms as well as pesticide manufacturers.

The Orchard Supply firm does no mixing of ingredients at all. Mr. Moore, in describing their business situation said that he is the man between the manufacturer and the user. He emphasizes that they do not work on a consignment basis, but buy all of their stock so that they have full responsibility for it. "Consignment is the curse of industry," Mr. Moore indicated. He places great emphasis on the business aspects of an operation such as his own. "Many people ask me what is wrong with this type of business, and I tell them that it is new operators frequently who are good technologists but are not businessmen. The penalty they pay in maintaining an unrealistic price schedule, is shared by the entire industry.

"You can't get by with a cut price policy in this business. Business volume may grow, but so does overhead and other hidden expenses which finally catch up with the operator and first thing he knows, he is bankrupt.

"In the meantime, such an operator has succeeded not only in bankrupting himself but also hurting his competitors who may survive but are not able to do the job they would like to do because of low profit margins.

"We need business people in this type of work. If a man has a good business head, he can learn the technology of the agricultural chemical trade or easily hire specialists who do know the trade and who can do him a great deal of good."

Since Orchard Supply Co. is regarded as a good example of an agricultural chemical business, entomology classes from the University of California's Davis campus come to the plant each year to learn this phase of entomological application. Mr. Moore reports that 60 or 70 students are frequently involved in such a visit to his plant and he wishes to emphasize to them the need for good business practices in such an operation.

"This is a very fascinating business," Mr. Moore says. "No two seasons are ever alike. Pest control problems change from year to year and so do the seasons and crop patterns.

"Because of the great press of business here agriculturally, we maintain 45 full time employees plus six or seven temporary employees during the peak of the season. These 45 people include salesmen, foremen, technologists, equipment operators and maintenance crews. We keep them very busy," he says.

As to further expansion, Mr. Moore looks to the potential seen in pasture lands in California. "When the day of irrigated pastures comes, there will be hundreds of thousands of acres of pasture land not now being used. It is possible that they may terrace some of the hills in this area, since housing developments take the best pasture land and leave the hilly areas for new pastures.

The west, he thinks, will continue to expand its beef growing industry and will need a great deal more pasture land than it has presently.

The firm operates its own two-way radio operation with 15 units being in its trucks and sales cars scattered throughout the trade area. Mr. Moore said that their telephone bill dropped tremendously after the radio had been put into effect, and that the savings in this regard practically paid for the radio setup. The savings in time and the added service to the customers brought about by instantaneous communication from wherever the trucks or people may be located, has much more than paid for itself, he said.

DEMONSTRATIONS

Continued from page 9

treatment to the acre, he scoffed, "That's ridiculous! The very idea of putting so much fertilizer on this rich soil is silly. . . ."

The owners of D & W found some soil on the Dorris farm quite similar to that tested on the prospect's land, and they treated an acre exactly as the test showed that the prospect's land should be treated. After the crop neared maturity, Bill Watson induced the prospect to ride over with him and see the acre.

"That's treated with exactly the same stuff and the same amount as was recommended for your land. I don't have to tell you where the fertilizer ends and the untreated crop starts."

The farmer gazed at the acre of maize in considerable awe. "Well, I'll be darned!" he exclaimed. "Maybe those fancy testers have something after all."

The owners of D & W have no doubt that this farmer will be a major fertilizer customer, come next year's planting season.

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Conference to Feature New Herbicide Data

NEW YORK—For the third year, "New Herbicides from Industry" will be a special feature of the Northeastern Weed Control Conference to be held in New York on Jan. 4-6.

Industry representatives have been invited to participate by presenting data on:

- New herbicides that will be available for experimental testing in the 1961 season.
- New herbicides now commercially available or to be marketed for the coming season.
- Improvements made on older herbicides or extended new uses for them.

This portion of the conference will begin at 8 p.m. on Jan. 4 in the Grand Ballroom of the Hotel New Yorker.

Weevils Boost High Moisture, Mold Loss

ST. PAUL—Granary weevils have a lot to do with high moisture and spoilage from storage mold in stored grain, according to University of Minnesota research workers.

In columns of wheat, moisture content and storage mold increased greatly where the weevils gathered, say C. M. Christensen, plant pathologist, and A. C. Hodson, entomologist, at the university.

The scientists put known numbers of granary weevils in cylinders of seed-grade wheat with a moisture content of 13 to 14%. That's too dry to allow mold growth but moist enough for insects to live.

The researchers put the same number of weevils in brass cloth cages filled with about 5 lb. of wheat and put them in the bottom of other wheat-filled cylinders.

They next filled other cylinders with weevil-free wheat of the same moisture content to serve as controls. All of the samples were stored at 77° and at 65 to 70% relative humidity.

Samples were taken at 5-in. intervals from each cylinder at the end of two, four and six months. Where weevils were not confined, the moisture content increased to 20% in the upper portion of the grain. Millions of mold colonies were found throughout the wheat.

Where weevils were confined to cages at the bottom of the grain column, moisture content increased as much as 3% in the grain several inches above the cage and about ½% in the grain 1 to 2 feet above the infested portion. Mold was present, but in lesser amounts. Grain in the control cylinders showed no noticeable change.

TVA Reports on 1960 Fertilizer Activity

KNOXVILLE—Nearly 150 fertilizer manufacturers and wholesale distributors and more than 1,600 retail dealers took part in TVA's distributor demonstration program during the 1960 fiscal year, according to the annual report of TVA's division of agricultural relations.

The report also reviews the test-demonstration program which is conducted cooperatively by extension services in 30 states and TVA. At the end of the year 3,538 farm families were taking part in the program.

Research on how fertilizers behave in soils and economic research on fertilizer distribution and use was conducted in cooperation with agricultural experiment stations in 22 states.

Bemis Announces $1.2 Million Expansion

ST. LOUIS, MO.—A plant expansion and modernization program for Bemis Bro. Bag Co. totaling more than $1,200,000 was announced by Judson Bemis, president.

Principal features of the program include a new plant near Muskegon, Mich., for the manufacture of Tekmold, and plant expansions in St. Louis, Mo., Claremont, N. H., Flemington, N.J., and Vancouver, Wash. About half of the total expenditures will be devoted to new papermaking and bag converting equipment installations in these locations.

Sales Meeting Held

BIRMINGHAM, ALA.—Salesmen and sales representatives of Vulcan Steel Container Co. from 11 southeastern states met recently at the company's main office and factory in Birmingham.

Plans were discussed and projected for a stepped-up program of sales-service to container users throughout the South and Southeast and a personalized cooperation with customers and prospective container users.

COLLECTIONS

Continued from page 11

their money they are spendink. McGillicuddy, I will let you sendt out these foolish letters on one condition."

"What?" asked Pat suspiciously.

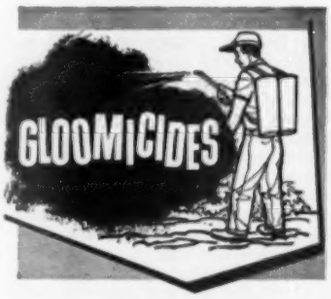
Oscar smiled coldly. "For every letter to a farmer buildink good will that you sendt out, you will sendt out one collection letter."

Pat's eyes glinted. "What if I don't agree?"

Oscar's lips were thin. "Then I will tear up every foolish letter I findt on your desk, ach, and into the wastebasket."

Pat breathed hard. "Well, let's try it," he said. "Both of us are giving in a little."

Oscar pointed at the letters. "When you mail those, Irisher, you haf to write 15 collection letters or make 15 collection calls inside a week. Ach, that shouldt get some of our money in—money farmers are usink for other purposes. Go get it."



"What would be the proper thing to say if, in carving the duck, it should skid off the platter and into your neighbor's lap?"

"Be very courteous. Say, 'May I trouble you for that duck?'"

◆ ◆ ◆

A missionary in the jungle came face to face with a cannibal. Flight was hopeless and he fell to his knees in anxious prayer. A few moments later he was greatly comforted to see the cannibal on his knees beside him.

"Dear brother," said the relieved missionary. "How delightful it is to join you in prayer when a moment ago I feared for my life."

"Don't interrupt," growled the cannibal, "I'm saying grace."

◆ ◆ ◆

An opportunist is the chap who keeps up with the Joneses by selling them new cars.

◆ ◆ ◆

Middle age is the time of life when a man feels he gets less for his money each time he goes to the barber.

◆ ◆ ◆

Girl answering telephone: "Marie isn't in just now. This is her 111 pound, five-foot-three, blonde, blue-eyed sister."

◆ ◆ ◆

"I hear you got in a fight with your wife. How did it come out?"

"She came to me on her knees."

"What did she say?"

"Get out from under that bed, you bum!"

◆ ◆ ◆

Two explorers met in the virgin forest. In the course of their conversation, one said, "I came in order to become acquainted with new horizons, to experience an unviolated solitude, to appreciate the grandiose charms of savage nature. And you?"

"I," replied the second explorer, "came because my little girl has just started taking piano lessons."

X-Ray Photographs of Insects Give More Information on Life and Habits of Pests

BERKELEY, CAL.—A University of California scientist is developing an x-ray method of probing the private lives of insect enemies of the state's valuable forests.

Using an ordinary x-ray machine, Ronald W. Stark, assistant professor of entomology on the Berkeley campus, is photographing insects hidden below the surface of sections of tree bark.

He reports that the pictures provide an easy, fast, and efficient means of studying the population fluctuations of insects and their life cycles without harming them.

In the past, Mr. Stark pointed out, forest entomologists spent many hours patiently chiseling away layers of bark to expose the insects within the sections and usually destroyed them in the process.

He is conducting investigations of the western pine bark beetle, No. 1 menace to California's coniferous forests, tip mining insects, cone, seed and wood-boring insects with the aid of the x-ray technique.

The initial results of these studies lead Mr. Stark to believe that the method will become an important tool in the field of forest entomology.

"X-ray photographs would assist scientists in predicting insect populations and estimating damage to forests," he said. "The pictures also would help them chart the life histories of insects and learn how parasites and predators operate on them."

Aided by Dr. C. Willet Asling, professor of anatomy at Berkeley, Mr. Stark hopes to devise a portable x-ray machine that could be employed to carry out entomological research on living trees in the forests.

He suggested that such an instrument might be capable of performing other services for groups concerned with detecting the presence of insects in wood.

"Federal and state inspectors at ports of entry could possibly use it to discover destructive insects in imported timber," Mr. Stark said. "A light, easily-transported machine also might be employed to discern the extent of internal damage to timber products caused by insects where there is no external evidence of harm."

Mississippi Conference to Study Cotton Pest Problem

STATE COLLEGE, MISS.—A highlight of the seventh annual Mississippi Insect Control Conference at Mississippi State University Jan. 5-6, will be a progress report on the new boll weevil research laboratory.

Dr. T. B. Davich, director of the new research center, will report on its status and the proposed insect problems for study, according to A. G. Bennett, entomologist of the Agricultural Extension Service.

Around 350 entomologists, agricultural workers, farmers and representatives of the agricultural chemical industry are expected to attend the conference, Mr. Bennett stated.

In addition to the report on the boll weevil research center, the latest research findings on other cotton insects, field crop insects, insects attacking livestock and termites will be featured.

A report on the increasing threat of pink bollworm invasion and suggested controls will also be discussed.

What to do about the growing limitations on use of agricultural chemicals regarding residual tolerances will be detailed by leading authorities.

The annual meeting of the Mississippi Entomological Association will be held in conjunction with the conference.

Clemson Chemist Retires

CLEMSON, S.C.—Donald B. Roderick, agricultural chemistry assistant at Clemson College, has retired after 37 years of service. He came to Clemson in September, 1923, and began his work studying insecticides for treatment of boll weevils. During World War II, he worked with the fertilizer inspection and analysis department, after which he returned to his work in the agricultural chemistry department.

IMC Opens Sales Office In Puerto Rico Area

SKOKIE, ILL.—International Minerals & Chemical, S. A., began operation of its new overseas sales office in Puerto Rico on Nov. 28. The company is a subsidiary of International Minerals & Chemical Corp., Skokie, Ill.

The new office, to be located in Santurce, just outside San Juan, will serve as headquarters for IMC's sales to a wide range of industries in Latin America and the Far East. These products will include phosphate rock, triple superphosphate, and potash used in the manufacture of fertilizers; complete fertilizers, and industrial grades of potash and magnesium for the chemical industries.

Luis Vergne, a native of Puerto Rico, will head the office as managing director.

Grace Announces Two New Fertilizer Materials

NEW YORK—A magnesium ammonium phosphate fertilizer that will not burn or injure roots or foliage has been developed by the research division of W. R. Grace & Co. According to the company, this new plant food can be applied at a heavy rate. It contains 8% nitrogen, 40% phosphate and 24% magnesium oxide (8-40-0). Under laboratory conditions, seeds germinate and plants grow in this phosphorus-containing compound without the presence of soil.

Magnesium ammonium phosphate is expected to be used for the fertilization of tree seedlings and is recommended for use on turf, citrus fruits, shrubbery, ornamental plants and truck farm crops.

"Field tests have indicated a second metal compound, ferrous ammonium phosphate (7-35-0), to be equally effective in some forestry applications," the company adds. At this time, however, it is recommended for use in nursery beds.

Grace says another feature of magnesium ammonium phosphate is its controlled rate of nutrient release over a growing season.

The new material is in semi-commercial production at the present.

RESEARCH APPOINTMENT

BERKELEY, CAL.—John E. Swift, agricultural extension service entomologist, has been named special assistant to Paul Sharp, director of the agricultural experiment station, to coordinate the University of California's statewide pesticide residue research and extension programs.

How Communities Benefit from Fertilizer Stressed at Pacific Northwest Meeting

BOISE, IDAHO — Harold Rud of Salem, Ore., was elected president of the Pacific Northwest Plant Food Assn. during the two-day convention here Nov. 3-4.

More than 200 registered for the 11th annual meeting from the representative states of Washington, Oregon, Utah and Idaho.

Others elected include Dick South, Mt. Vernon, Wash., vice president; John Wilson, Seattle, secretary; and Art Burkette, Seattle, treasurer.

F. Todd Tremblay of the National Plant Food Institute at Seattle served as moderator during a panel discussion on "Intensified Soil Fertility Programs in the Northwest" in which three county extension agents from eastern Idaho described a drive in their area to increase soil testing and soil fertility.

Rex Gooch of Jefferson County, Frank Jacobs of Madison County and Jay Garner of Fremont County said a program on soil fertility had brought good results from the farmers and the citizens in the community.

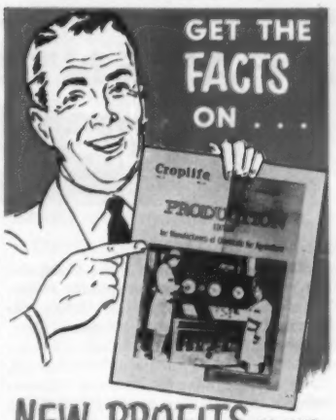
They appeared with Walt Mauritson, Flathead County, Montana, who told of a similar program there.

Charles Painter, extension soils specialist from the University of Idaho, covered the evaluation phase of the united effort and the followup campaign to get farmers interested in testing soil and following recommendations of the extension service to increase the soil fertility.

Mr. Tremblay pointed out that it is the plant food dealers' purpose to sell fertilizer and the extension service's aim to promote its own program.

"We have found that if we sell the extension program, we are also selling more fertilizer," he declared, adding that the sale of fertilizer should be pegged toward the economic advantages to the community; namely, that fertilizer means more crops which mean more money to the local economy.

INTENSIFIED SOIL TESTING programs in the Northwest were discussed by this panel at the Pacific Northwest Plant Food Assn. meetings held in Boise, Idaho, Nov. 3 and 4. Members of the panel were, from left to right: F. Todd Tremblay, NPFI, moderator; Rex Gooch, Madison County, Idaho, agent; Frank Jacobs, Jefferson County agent; Jay Gerner, Fremont County agent; Walt Mauritson, Flathead County, Montana, agent, and Charles Painter, University of Idaho, extension soils specialist.



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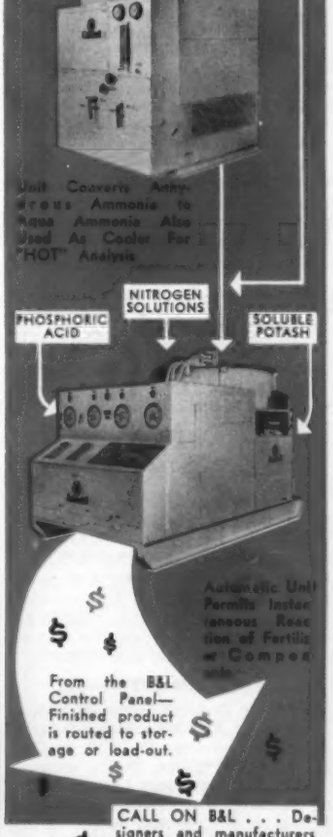

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PATENTS and TRADEMARKS

PROFITS GUARANTEED—F. S. Royster Guano Co. has offered guarantees of at least 10% more net profit to Midwest corn farmers through its advertising in a farm publication. Inspecting the copy are C. G. Baughman, left, sales manager and at right, Dr. Sam F. Thornton, director, chemical control and farm service, both of Royster, and Bud Rodgers, account executive, VanSant, Dugdale & Co., Baltimore advertising agency which prepared the ad.

2,957,800

Nematocidal Composition Comprising Amides of Dihalopropionic Acids. Patent issued Oct. 25, 1960, to Thomas R. Hopkins, Joplin, Mo., Ralph P. Neighbors, Miami, Okla., and Otto L. Hoffmann, Pittsburg, Kansas, assignors to Spencer Chemical Co. A wettable powder for plant parasitic nematode control comprising an inert powdered solid carrier, a liquid surface active agent, and a compound of the formula

wherein X is a member of the group consisting of bromine and chlorine, and R is a member of the group consisting of piperidino, pyrrolidino, isoindolino, 1,2,3,4 - tetrahydroisoquinolino, 1,2,3,4 - tetrahydroquinolino, tetrahydroisoindolino, piperazino, N-alkylpiperazino, 3-hydroxypiperidino and 4-hydroxy piperidino radicals, —NHR_1 and —$N(R_1)R_2$, wherein R_1 is a member of the group consisting of phenylazophenyl, naphthyl, phenyl - lower alkyl, and biphenylyl, halophenyl, dihalophenyl, nitrophenyl groups, R_2 is a member of the group consisting of phenyl, nuclear substituted phenyl, lower alkyl, phenylazophenyl, naphthyl, phenyl-lower alkyl, and lower cycloalkyl groups, and R_3 is a member of the group consisting of phenyl, lower cycloalkyl groups and the groups represented by R_2.

2,957,761

Method and Composition for the Treatment of Soil. Patent issued Oct. 25, 1960, to Edwin A. Davis, Westminster, Cal., assignor to the Dow Chemical Co., Midland, Mich. A method useful for improving the plant growing properties of soil which comprises impregnating soil with an active ingredient in the amount of at least four parts by weight per million parts by weight of the soil, the active ingredient being selected from the group consisting of 4-chloro-2-butyn-1-ol and 4-bromo-2-butyn-1-ol.

2,957,763

Process for Producing Mixed Ammonium Nitrate—Monoammonium Phosphate Prills. Patent issued Oct. 25, 1960, to Marion D. Barnes, Glenda'e, Mo., and John E. Lyon, Conway, Ark., assignors to Monsanto Chemical Co., St. Louis. A process for the production of mixed fertilizers in granular form which comprises spraying at a temperature in the range of from about 170° C. to about 225° C. a mixture containing from about 50 parts by weight to about 85 parts by weight of ammonium nitrate and from about 50 parts by weight to about 15 parts by weight of monoammonium phosphate into an inert gaseous cooling medium maintained at a temperature below the crystallizing temperature of said mixture.

2,955,977

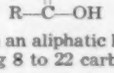
Tertiary Dodecyl Mercapto-Sodium Acetate as Pest Combatting Agent. Patent issued Oct. 11, 1960, to Paul F. Warner, Phillips, Texas, assignor to Phillips Petroleum Co. A method of combatting an insect which comprises subjecting said insect to the action of tertiary dodecyl mercapto-sodium acetate.

2,955,976

Nematocide. Patent issued Oct. 11, 1960, to Kenneth L. Godfrey, St. Albans, W.Va., assignor to Monsanto Chemical Co., St. Louis, Mo. A method of inhibiting the parasitic worm life in soils which comprises dispersing in the soil from 25 to 600 lb. per acre of a product made by heating a mol of at least one ethylene polyamine of the group having the structural formula:

$$H_2N(CH_2—CH_2NH)_n—H$$

wherein n is an integer from 2 to 6 inclusive with more than one mol of at least one of the monocarboxylic acids having the structure:



wherein R is an aliphatic hydrocarbon group having 8 to 22 carbon atoms.

2,957,910

Process for Preparing Ureas. Patent issued Oct. 25, 1960, to John A. Patterson, Fishkill, N.Y., assignor to Texaco, Inc. In a process for preparing ureas from carbon monoxide and a compound selected from the group consisting of ammonia and alkyl primary monoamines having up to 10 carbon atoms at a temperature between about 150° and 300° F., at a pressure from 200 to 2000 p.s.i.g. and at a mol ratio of compound:carbon monoxide between about 10:1 and 0.1:1 in a reaction zone containing inert liquid reaction vehicle, said vehicle composing between 40 and 95 wt. percent of the reaction mixture, the improvement which comprises supplying to the reaction zone a polysulfide having 3 to 5 sulfur atoms selected from the group consisting of di - n - butyl polysulfide, di - tertiary butyl polysulfide, diallyl polysulfide, dicyclohexyl polysulfide, diphenyl polysulfide, di-p-toyl polysulfide, dibenzyl polysulfide, and 4,4-dimethyl-1,2-polythiacyclopentane in a mol ratio of between about 0.1 and 10 grams per mol of said compound per gram atom of sulfur in said polysulfide.

2,955,979

Aphicidial Composition. Patent issued Oct. 11, 1960, to Richard E. Van Strien, Griffith, Ind., assignor to Standard Oil Co., Chicago. A method of controlling sucking insects which method comprises applying to a habitat of said insects a trialkyl trimellitate where each alkyl group contains from 1 to about 20 carbon atoms.

2,957,911

Process for Preparing Ureas. Patent issued Oct. 25, 1960, to John A. Patterson, Fishkill, N.Y., assignor to Texaco, Inc. In a process for preparing urea from carbon monoxide and a compound selected from the group consisting of ammonia and alkyl primary amines having up to 10 carbon atoms at a temperature between about 150° F. and 300° F., at a pressure from 200-2000 p.s.i.g. and at a mol ratio of compound:carbon monoxide between about 10:1 and 0.1:1 in a reaction zone containing an inert liquid reaction vehicle, said vehicle composing between about 40 and 95 wt. percent of the reaction mixture, the improvement which comprises supplying the reaction zone with a disulfide selected from the group consisting of di-n-butyl disulfide, diallyl disulfide, dicyclohexyl disulfide, diphenyl disulfide, di-p-tolyl disulfide, dibenzyl disulfide, and 4,4-dimethyl-1,2-dithiacyclopentane, in a mol ratio of compound:disulfide between about 1:1 and 10:1 and conducting the reaction in the presence of a solid particulate dehydrogenation catalyst selected from the group consisting of molybdenum sulfide on alumina, molybdena-alumina, and nickel tungsten sulfide.

2,957,912

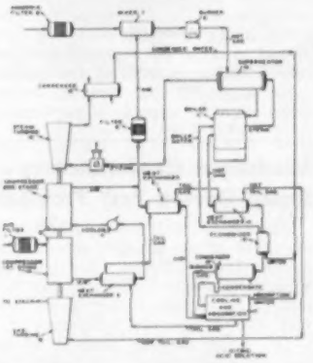
Process for Preparing Urea. Patent issued Oct. 25, 1960, to John A. Patterson, Fishkill, N.Y., assignor to Texaco, Inc. A process for making urea and molecular hydrogen by contacting ammonia with carbon monoxide in a mol ratio of ammonia:carbon monoxide of between about 10:1 and 0.1:1 at a pressure between 200-2000 p.s.i.g. and at a temperature of between about 160° F. to 400° F. in the presence of inert liquid reaction vehicle, said vehicle comprising between about 40 and 95 wt. percent of the reaction mixture, and a sol'd particulate dehydrogenation catalyst selected from the group consisting of molybdenum sulfide on alumina, molybdena-alumina and nickel tungsten sulfide.

2,957,913

Process for Preparing Ureas. Patent issued Oct. 25, 1960, to John A. Patterson, Fishkill, N.Y., assignor to Texaco, Inc. In a process for preparing ureas from carbon monoxide and a compound selected from the group consisting of ammonia and alkyl primary monoamines having up to 10 carbon atoms and at a temperature between about 150° F. and 300° F., at a pressure from 200-2000 p.s.i.g., and at a mol ratio of compound:carbon monoxide between about 10:1 and 0.1:1 the improvement which comprises supplying the reaction zone with both the sulphureous substances hydrogen sulfide and sulfur dioxide, at a mol ratio of compound:hydrogen sulfide of between about 0.2:1 and 20:1, at a mol ratio of hydrogen sulfide:sulfur dioxide of 0.5:1 to 5:1 and conducting the reaction in presence of inert liquid vehicle for the reaction, said vehicle comprising between about 40 and 95 wt. percent of the reaction mixture.

2,955,917

Process and Apparatus for the Manufacture of Nitric Acid at Elevated Pressures with Full Power Recovery. Patent issued Oct. 11, 1960, to Edward S. Roberts, 874 Woodward Ave., Ridgewood, N.Y., and Michael J. Kalous, 1880 Delaware St., Niagara Falls, Ontario, Canada.



In a high pressure nitric acid system in which heat concentrated by the compression of air in the air compressor is recovered and conserved as energy for operating such a compressor the combination of a multi-stage air compressor of the adiabatic type in which virtually all the heat from compression is retained in the air as it emerges from the compressor and which is adapted to deliver air into the system at a pressure of at least 85 p.s.i.a., means for mixing air heated in the final stage of the compressor with ammonia and for burning such mixture in the presence of a catalyst, a boiler heated by the hot burner gases to generate steam, and a superheater whereby said burner gases are used to superheat such steam, a steam turbine connected with the compressor adapted to be driven by said superheated steam, a tail gas heat exchanger for transferring heat from air from a first stage of compression to preheat tail gas from the operation, another heat exchanger in which such preheated tail gas is further heated by burner gases that have been used for generating steam as aforesaid but without lowering the temperature of such gases below their dew point, a gas turbine connected with the compressor adapted to be driven by said heated tail gas such gas turbine and the aforesaid steam turbine being adapted to drive said compressor to produce the specified compression when driven only by the gas and steam derived from the process without supplemental heating, a

Turn to **PATENTS**, page 21

PLANT NUTRIENTS MAIN CONSIDERATION IN FERTILIZERS

URBANA, ILL.—Liquid fertilizers are as good as dry ones, a University of Illinois expert says.

Regardless of the form of fertilizer, if enough plant nutrients were added to meet soil test requirements, yields increased in a two-year test conducted by A. L. Lang, University of Illinois.

He tells farmers that the type of fertilizer to use depends on (1) how well it fits the field and crop's needs, (2) how convenient it is to handle and apply and (3) what it costs per unit of plant nutrients.

Liquid fertilizers seem to be just as good as, but no better than, other fertilizers, Mr. Lang said in an article on liquid fertilizers in the fall issue of "Illinois Research."

Corn receiving starter fertilizer made more early growth than corn receiving only the broadcast fertilizer. However, the amount of early growth was about the same for liquid and dry starters. The beginning growth encouraged by the starters did not greatly increase yields, he said.

"Voice in Wilderness" . . .

Prof. C. J. Chapman Retires After 45 Years Preaching Merits of Soil Fertility

MADISON, WIS. — Prof. C. J. Chapman, known throughout wide areas of the country and especially in the middlewestern states as one of the most outspoken boosters for soil fertility, retired from his post at the University of Wisconsin on Nov. 30.

For nearly 45 years, "Chappie" has been singing the virtues of fertilizer, particularly nitrogen, before groups both large and small; in fact, to anyone who would listen. Few, indeed, are persons associated with agriculture in the middle portion of the country, or the fertilizer industry, who have not heard of Prof. Chapman. These people, all of whom he considers friends, call him variously "Mr. Soils," "Mr. Nitrogen," and "Mr. Lime," but he has also been referred to as a "Modern John the Baptist." This is because he was for years a "lone voice crying in the wilderness" to audiences of agriculturists who frequently paid too little heed to his message.

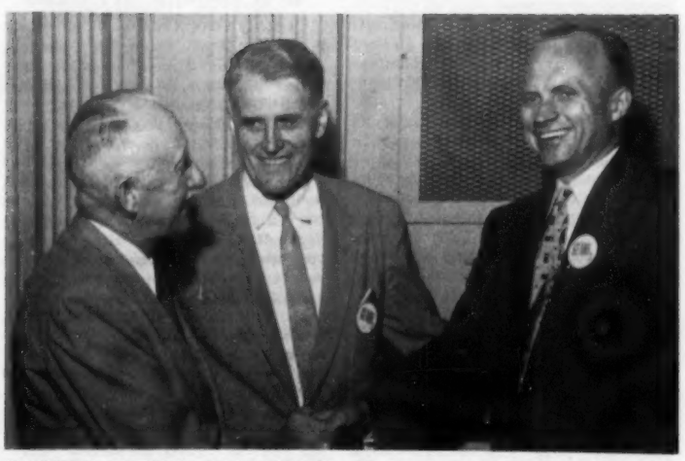
His oratorical efforts, plus indefatigable work in conducting literally thousands of on-the-farm demonstrations with fertilizers for corn, small grain, pasture, alfalfa and clover, potatoes, sugar beets, tobacco, kelp, cabbage, canning peas, onions, and cranberries have added up to a prodigious impact on farmers' attitudes toward fertilizers in general and nitrogen in particular.

Not only has he visited township, county, state, regional and national meetings, frequently appearing on the programs, but he also wrote prolifically for farm papers and the trade press, including, of course, Croplife.

His numerous honors include citations from the Wisconsin Farm Bureau in 1949, the Great Plains Agricultural Ammonia Assn. in 1955, the Agricultural Ammonia Institute in 1956, and the American Society of Agronomy, also in 1956.

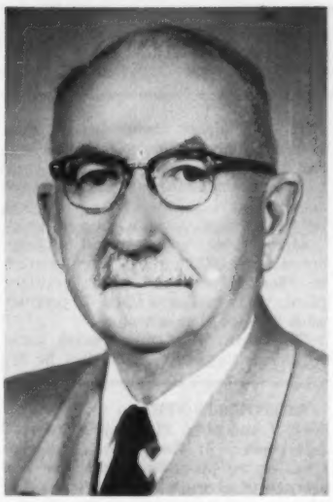
Just recently he was cited by the Wisconsin Extension Workers Assn. for his contributions to the University and the state.

One couldn't possibly imagine that Prof. Chapman would quit work when he retires. For one thing he has a true love for flowers. Into odd minutes of his busy career, he has tucked the flower hobby. The front yard of his home in Madison is a traffic stopper from early spring until late fall. Prof. Chapman plans to continue his soils work on a consultant basis and to continue growing flowers.



PIONEER NITROGEN PROMOTER—Professor C. J. Chapman began his work of urging adequate fertilization of crops many years ago. Above, he is shown in an exhibit at the 1916 meeting of the Wisconsin Potato Growers Assn. Mr. Chapman, at left, was only 26 at the time this photo was taken. With him is his friend and teacher, Dr. A. R. Whitson.

In lower picture, "Chappie" is seen at left with Dean R. K. Froker, center, and Ken Kross, then president of the Great Lakes Section of the Anhydrous Ammonia Institute, on the occasion of Prof. Chapman's receiving an award of merit from the AAI a few years ago. It was only one of many honors bestowed upon Prof. Chapman over the years.



Prof. C. J Chapman

In fact, he states that for the first few weeks following his retirement, he is scheduled for meetings in Nebraska, Iowa and Minnesota . . . "And as an interlude, a couple or three weeks of vacation with relatives in California."

Chappie is apparently not the quitting kind. As he said on a farm radio program on Nov. 21, ". . . in my forty-five years in extension education in soils, I can truthfully say that I've worked hard, I've given to the limit of my time and energy, I've talked and written much, and I've witnessed vast and sweeping changes in the attitude of farmers and others toward soil conservation practices and the use of lime and fertilizers.

"I've played a part in this great drama—and even in retirement I hope to continue to give of my time and knowledge in the preparation of press articles and platform appearances."

Where did Prof. Chapman get the soil fertility bug? He says it all began back in 1917 when he launched a program of fertility demonstration plots in Ohio. "During the month of March that year, I set up a total of twenty-two acre-scale topdressing demonstrations with high nitrogen fertilizer on winter wheat," he recalls. "This work was distributed pretty well over the entire state in widely-scattered counties.

"I am sure that my great interest in nitrogen as a fertilizer had its inception back in that year 1917, for surely the response of many of those fields of wheat to treatment with nitrogen (in a blended mixture with phosphate and potash) was outstanding with increases in yield ranging from three to as high as thirteen bushels more per acre.

"And so for the past thirty-nine years I have been traveling the state of Wisconsin, preaching, teaching, and demonstrating fertilizers and lime. And, as I review the progress in this field of soil improvement through the use of lime and fertilizers these past thirty-nine years, yes, a total of nearly forty-five if I include my six years as a salesman, I have seen some sweeping changes. Fertilizer use for Wisconsin in 1916 totaled about five thousand tons, but in 1958-59, Wisconsin farmers used over 474,000 tons, and for the past ten years, we have averaged better than 425,000 tons."

Prof. Chapman came to the University of Wisconsin in 1921 to supervise the State Soils Laboratory. He is a native of Darlington, Wis., and was graduated from the University of Wisconsin in 1914.

Ammonia Institute Meeting Program to Stress Agronomic Aspects

MEMPHIS, TENN.—Emphasis will be on the agronomic aspects of direct application ammonia as the Agricultural Ammonia Institute holds it 10th annual convention here Jan. 11-13.

Jack F. Criswell, AAI's executive vice president, said headline speakers would include Dr. William P. Martin of the University of Minnesota, who will discuss ammonia use and research in the North Central states; Perrin Grissom, agronomist at Delta Branch Experiment Station, Greenville, Miss., and Dr. R. L. Beacher of the National Plant Food Institute. All will talk on ammonia's use and future in various areas.

Presiding will be Carl J. Bauserman of Southern Michigan Nitrogen Co., Midland, Mich., president of the AAI. Toastmaster for a special 10th anniversary program will be R. W. Scalan of Phillips Petroleum Co.

The AAI, said Mr. Criswell, meets the need for information on use and equipment, and also functions as a liaison center for the ammonia producing industry. About 750,000 tons are used annually for direct application as a nitrogen fertilizer, making ammonia the largest single source of direct application nitrogen. The rest is used in industry and in the making of mixed fertilizers.

Mr. Criswell estimates the ammonia industry, with its tanks, equipment and manufacturing plants, is worth about $2 billion.

To Sponsor Breakfast

COLORADO SPRINGS, COLO. — Monsanto Chemical Co. will sponsor a breakfast devoted to the theme of "Careers in Horticulture," as part of the 26th Annual National Junior Vegetable Growers Assn. convention Dec. 7.

Dr. Joseph D. Campbell of Monsanto's agricultural chemicals division will represent the company on a panel of authorities to cover the various job and career opportunities open to young men and women.

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ROUND TABLE PANELS

Continued from page 1

completely satisfactory product. The speakers following on the panel elaborated upon the theme outlined by Dr. Kapusta and each speaker reiterated the fact that suppliers are eager to meet the reasonable demands of manufacturers who buy their products.

Mr. Wendt described methods of separating potash from brine at the Trona, California, operations of his company. He said that the process is carefully controlled throughout and outlined the storage properties of the product and mesh sizes available.

Mr. Bourne reported that his company used the basic flotation process for recovery, and that quality of product is the keynote. At one time, he said, potash producers stressed production, but now are supplying granular potash. Still, he added, it is difficult to maintain precise standards due to the seasonal aspect of the business, problems of storage, and of transportation to many places at the same time.

Mr. Heck gave the specifications on his firm's potash screen analysis and other contents of product. He said that IMC will be shipping potash from its new location in Saskatchewan next year.

Mr. Gidney said that interest in standardization and uniformity is relatively new, and that modern continuous processes have made a difference in the demand for potash sizes. Potash of too fine particle size does not granulate well in a continuous process, he said, but his firm makes a variety of sizes in keeping with the processes used in plants.

Mr. Rogers, reiterating statements made by previous panel speakers, said that there are great variations in demand from manufacturers. To avoid confusion, he said, advance notice is sent to manufacturers giving data on the material being sent out.

Completing the panel discussion on potash, Dr. Kapusta told the Round Table that his company processes potash by crystallization and presented a full report on the grades, sizes and other specifications of the product.

Preneutralization Panel

As a continuation of discussions begun during the 1959 Round Table talks on preneutralization, a panel of production experts covered the subject at the 1960 meeting. Al Spillman was moderator of the panel which comprised Grant C. Marburger, Spencer Chemical Co., Kansas City, Mo.; George Gilliam, Nitrogen Division, Allied Chemical Corp.; Harold Garrett, Minute Maid Co.; R. D. Young, Tennessee Valley Authority; and N. K. Alfrey, W. R. Grace & Co.

By showing photographs and flow diagrams on a screen, Mr. Marburger described the preneutralization facilities of Farm Fertilizers, Inc., Omaha, Neb. He told in detail the positioning of the spargers in the preneutralized tank, the flow of liquid nitrogen and acid into the tank, and the route of the preneutralized product to the ammoniator-granulator.

The speaker said that the plant turns out 16-20-0; 15-15-0; 15-15-5; and 20-10-5. Water is used to keep temperature down to the range of 275°-300° used in the process. Constant control is necessary, Mr. Marburger said, since the process can go from too wet to too dry very quickly.

Mr. Young reviewed the steps to be taken in preneutralization, emphasizing the need for an adequate exhaust system. Temperatures should be controlled at 250° to 275°, he said, and the distributor should be simple and easily cleaned. He showed on the screen drawings of a "sawtooth" distributor made of stainless pipe with serrated slot in pipe, which he said had performed well.

"Preneutralization is not a cure-all," he said. "But where technical help is available, it is a good system."

Mr. Garrett explained that his firm, operating 20,000 acres of citrus groves in Florida, owns its own fertilizer plant and makes a 14-0-7 product with 6 units of magnesium.

The plant has experienced some trouble with preneutralization, he reported. He said the vessel is 54 by 80 inches, with drains at the base and an overflow pipe 40" high. The top was left open originally.

EDITOR'S NOTE: In its issues of Nov. 7 and Nov. 21, Croplife carried full reports of Round Table discussions on the production, handling and storage of phosphate; standardization of nomenclature within the trade; and views of various mixed goods manufacturers on uniformity, or lack of it, in raw materials they receive. This present article, along with the report on instrumentation in fertilizer plants on page 4, completes Croplife's coverage of the 1960 Round Table meeting.

Nitrogen solutions were introduced via a "U"-shaped sparger with the acid sparger in the middle. The agitator was over the tank, but fumes coming out of the top corroded the motor, forcing them to place it on the side away from fumes.

Trouble was experienced with corrosion of acid spargers, some of them lasting only 6-8 hours.

Many of the original problems have now been solved, but there is still difficulty from excessive fuming, the speaker said.

Mr. Gilliam projected slides to show equipment and operational procedures in starting up a preneutralizer. He said that water should first cover the spargers on the bottom of the vessel, then acid and solution should be introduced slowly. One should not add more water until operating temperature has been reached. Once under way, the operation practically runs itself.

Variables in the process include that of temperature, which determines the amount of water to be used, and also governs the loss of ammonia by heat.

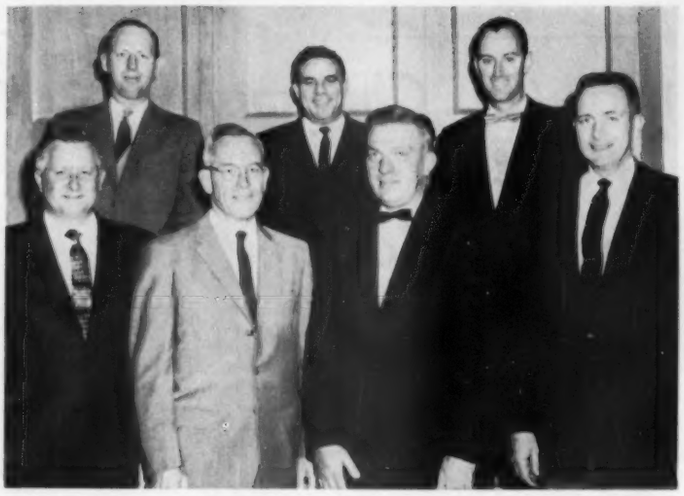
Mr. Alfrey described improvements in the process which reduce losses of nitrogen and help to control fumes generated in preneutralization. He said there are still many problems with the process, but improvements are being made constantly.

How statistical procedures may be used to study losses of nitrogen in fertilizer plants was explained by E. Glocker, W. R. Grace & Co. He reported on the results of studies made on nitrogen losses, describing methods used to determine them.

Aquatic Weed Control Society Plans Meeting

CHICAGO—The 2nd annual Aquatic Weed Control Society meeting will be held Feb. 14 and 15 in the LaSalle Hotel, Chicago, Ill., according to Paul W. Eller, publicity chairman.

The program will consist of biological discussions on relationship between aquatic weeds, algae and lake nutrients, and presentation of new aquatic herbicides by chemical company representatives. Other topics will include a review of current field tests by research and regulatory agencies; legal aspects of aquatic agencies.



WEED EXPERTS comprising the executive committee of the Northeastern Weed Control Conference met recently to plan the 1961 conference scheduled for Jan. 4-6 at the Hotel New Yorker, New York. Attending the committee session were the members pictured above. First row, left to right: Dr. D. A. Schallock, Rutgers University, secretary-treasurer; Lawrence Southwick, Dow Chemical Co., vice president; E. M. Rahn, University of Delaware, president, and Dr. M. W. Meadows, G.L.F. Soil-Building Service, program committee chairman.

Back row: A. B. Lindquist, Stauffer Chemical Co., public relations committee chairman; A. J. Tafuro, Amchen Products, Inc., sustaining membership committee chairman; Dr. P. W. Santelmann, University of Maryland, research coordinating committee chairman. Absent when the committee picture was taken was Dr. L. Gordon Utter, Diamond Alkali Co., awards committee chairman.

CFA

Continued from page 1

way to the success of our society," he said.

Mr. Macdonald reviewed several accomplishments of the fertilizer industry and said that early industry scientists, such as Liebig, Gilbert, and others, contributed in major aspects more to human progress than did Einstein. He pointed out that fertilizer is a necessary crop production tool, and should be sold on the basis of the added profit it will bring the grower, rather than on a price basis.

"The business that relies on lower prices usually goes broke or the government takes it over," he said, and added a plea for universal and active support of the industry trade association. "If you invest your active support, you'll get it back with interest."

Leon V. Tichinin, Santa Clara County agricultural extension service, University of California, San Jose, speaking following the business luncheon, gave an account of his participation in the American National Exhibition in Moscow in 1959. He had been sent there as an official representative of American official agriculture.

During his forty-two days there, he had the opportunity of talking with thousands of people from all over Russia, and pointed out that while those people have been subjected to rigid propaganda in place of factual information ever since 1917, they are friendly toward Americans. However, they are distrustful of our government, which their masters have told them repeatedly might attack Russia at any moment.

He said that Russian people want peace, but they have no voice in determining the foreign policy. "We will not have peace if the decision is left to the communists, because they are dedicated to faster world revolution. Soviet Union policy, both domestic and international, is one of treachery, deceit, and lies. This is acceptable and considered proper because communists follow the concept that the 'end justifies the means,' and the ends of communist policy are world domination."

Demont W. Galbraith, CFA president, in his statement which opened the program, said he has noted with alarm the recent steady decline in the price of fertilizing materials to the consumer in the face of increasing costs of doing business. A factor in the changing pattern, he said, is the up-surge of manufacturing cooperatives as "the biggest single threat to our economic lives that exists today." It is insidious in that it does not correct any evils, but instead, because of its tax privilege status, could well bring on reduced industry progress. Private business enterprise has developed new methods and competitive marketing practices. He urged support of H.R. 3848 which he said would bring about a greater degree of tax equalization.

L. E. Gould, chairman of the soil improvement committee, and Sidney H. Bierly, association general manager, reported on program and accomplishments during 1960.

The business session ended with a panel discussion on "The Fertilizer Industry—Yesterday, Today and Tomorrow." Moderated by Howard H. Hawkins, Glendora, the panel consisted of Dr. Guy F. MacLeod, Fresno; L. E. Gould, San Francisco, and

CFA NAMES OFFICERS

CORONADO, CAL.—J. F. Sloan, president, J. F. Sloan Co., Salinas, Cal., was named president of the California Fertilizer Assn. at the group's recent meeting at the Del Coronado Hotel here. Mr. Sloan succeeds D. W. Galbraith, Agriform Chemical Co., Woodland, Cal.

Other 1961 officers named by CFA members at the convention are: John N. Williams, Chula Vista, vice president; L. M. Roberts, San Francisco, treasurer; C. E. McFaddin, El Centro, secretary; and Sidney H. Bierly, Sacramento, general manager.

In addition to the officers, L. M. Duckworth, Fresno, and James Bonaventura, Edison, were elected for 3-year terms on the CFA board of directors.

William M. Clines, Los Angeles.

Dr. MacLeod reviewed the history of the industry, and pointed out that it has played a major role in the chemical revolution which contributed so much to the development of our country. In 1850, five million cubic feet of ammonia valued at $13 million were produced. In 1826, ground bones and oyster shells were acidulated to form the phosphate industry in America. The World War I blockade of the Chilean nitrate fleet brought on government production of nitrogen. The competitive and transitional relationships between three stages of human history in the chemical world can be characterized as: (1) Natural, (2) by-product, and (3) synthetic chemical products.

Mr. Gould said that the farmer now gets a rare bargain for his fertilizer dollar, and that the products, technology, and services available to him are of prime importance to his well-being.

Mr. Clines said the fertilizer industry will still be on the scene in future years, since its products are increasingly important in agricultural production, and since we have an unlimited source of nitrogen in the air, and with phosphate and potash both in plentiful supply. He predicted a gain of 150 million people each year in world population, with 245 million in the United States, and 25 million in California in 1975. This will insure a market for industry products, he said. Fertilizer education will increase at all levels, he added.

The CFA ladies enjoyed an association-sponsored cocktail hour, a golf tournament, two putting matches and, with the men, participated in a mixed bowling tournament. The men had a golf tournament at the Caliente Country Club in old Mexico.

The Kraft paper bag industry sponsored a cocktail hour and a post-dinner bingo game for all in attendance on Sunday, Nov. 13, as a get-acquainted effort. American Potash and Chemical Corp. sponsored a cocktail hour preceding the banquet on Tuesday, Nov. 15.

TAKES BOARD POSITION

SAN FRANCISCO — Christian de Guigne III, chairman of the board of the Stauffer Chemical Co., has accepted membership on the board of directors of Stanford Research Institute. A native of San Mateo, Cal., Mr. de Guigne was educated at Harvard University and joined Stauffer Chemical in 1934.

GROWERS USING PESTICIDES WISELY

BERKELEY, CAL. — California fruit producers passed all chemical residue inspection tests this year with flying colors, despite stiffer enforcement of Federal laws limiting residues on food products, according to Dr. J. E. Swift, entomologist at the University of California. Dr. Swift, who heads the university's pesticide residue program, made the statement recently at the 42nd annual convention of the California Farm Bureau Federation here.

"Food and drug inspectors examined many shipments of fresh, frozen and canned fruits and found no residue problem," Dr. Swift said. "The industry can be proud of the way it policed itself."

The "cranberry scare" of 1959 did much to stimulate close observance of residue regulations, Dr. Swift noted. "The cranberry publicity nearly ruined that industry," he said. "If a similar situation occurred for peaches, pears or any other fruit, their saleability would be seriously hurt, too."

PATENTS

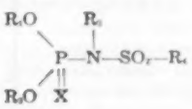
Continued from page 18

heat exchanger of corrosion resistant metal into which the burner gases that have been used for heating the tail gas enter at a temperature above their dew point and through which they pass in indirect counter flow to water in liquid phase whereby said burner gases are rapidly cooled below the dew point of contained water vapor and the liquid water in the exchanger is heated for use as feed water for said boiler, and a condenser, for the burner gases, and a cooling and NO_x absorption system from which nitric acid may be withdrawn and from which spent tail gases may be withdrawn to be passed to the tail gas heat exchanger aforesaid and a connection between said condenser and said cooling and absorption system comprising space for NO oxidation.

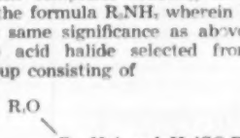
2,957,020

Method of Preparing Phosphorus Containing Insecticidal Compounds. Patent issued Oct. 18, 1960, to Werner Perkow, Hamburg, Germany, assignor to C. F. Spiess & Sohn, Hamburg, Germany.

A method of producing a compound of the formula



wherein R_1 and R_2 each represent an alkyl radical containing 1 to 4 carbon atoms, X represents an atom selected from the group consisting of oxygen and sulfur atoms, R_3 represents an alkyl radical containing 1 to 12 carbon atoms, the cyclohexyl radical, the phenyl radical and mono- and dichloro substituted phenyl radicals and R_4 represents an alkyl radical containing 1 to 12 carbon atoms, monochloro substituted alkyl radicals containing 1 to 4 carbon atoms, the phenyl radical and mono- and dichloro substituted phenyl radicals which comprises reacting an amine of the formula $R.NH_2$ wherein R_4 has the same significance as above with one acid halide selected from the group consisting of



wherein Hal represents halogen and X. R_1, R_2 and R_4 have the same significance as above to replace the Hal by the radical R.NH— and then reacting the reaction product with the other of such acid halides.

2,956,915

Thermo-plastic Laminate for use in Lining Storage Tanks. Patent issued Oct. 18, 1960, to Irving Korn, Great Neck, and Joseph S. Kaye, Brooklyn, N.Y., Vernon C. Pierce, Yardville, and William Walworth, Groveville, N.J., and Joseph Huscher, Philadelphia, assignors to Kave-Tex Manufacturing Corp., New York.

A special thermo-plastic laminate for the interior walls and floors of tanks for protection against corrosion and abrasion comprising an inner layer of unplasticized polyvinyl chloride and an integral outer layer of plasticized polyvinyl chloride bonded to the interior of the tank, a primer coat being provided on the adjacent faces of the tank and said plasticized polyvinyl chloride layer, and a bonding coat being applied over said primer coats.

2,958,571

Solids Conveyance Process and Apparatus. Patent issued Nov. 1, 1960, to John E. Hines, Jr., Long Beach, and Charles J. Welsh, Orange, Cal., assignors to Union Oil Company of California, Los Angeles.

A method for conveying granular solids which comprises introducing solids to be conveyed into an induction zone, maintaining therein a mass

of said solids submerging the outlet therefrom opening into an elongated conveyance zone, passing a first portion of conveyance fluid through said mass of solids in said induction zone into said conveyance zone, passing a second portion of conveyance fluid directly into said conveyance zone adjacent the upstream end thereof, passing the combined fluids through said conveyance zone at a rate sufficient to overcome forces acting on the solids and opposing solids flow, and restricting the flow of the mass of solids discharging from the outlet of said conveyance zone to maintain said outlet submerged in said mass of solids and to maintain the solids in said conveyance zone at a bulk density substantially equal to the static bulk density of said solids when at rest.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.6.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Ratorex, in hand-drawn letters, for rat and mouse poison. Filed Dec. 11, 1959, by McConnon & Co., doing business as Mackwin Co., Winona, Minn. First use Aug. 16, 1951.

Gardane, in capital letters, for insecticide powder. Filed April 8, 1960, by Lien Chemical Co., Franklin Park, Ill. First use Nov. 25, 1959.

Surestand, in heavy capital letters, for powdered fertilizers. Filed April 8, 1960, by Howerton Gowen Co., Inc., Roanoke Rapids, N.C. First use May 21, 1959.

PESTICIDE DANGER MINIMIZED

BERKELEY, CAL. — The biggest danger in the use of agricultural chemicals is not to the ultimate consumer, according to Malcolm H. Merrill, California state health director, but to the farm worker.

Dr. Merrill told the 42nd annual convention of the California Farm Bureau Federation that there were 1,100 cases of agricultural workers being poisoned by agricultural chemicals in 1959. He said most of the cases were due to the improper use of pesticides in fields and orchards.

He called the danger to persons eating farm products "remote," pointing out that the effects of agricultural chemicals to wild life and domestic animals are still being investigated.

"Unwarranted alarm and unreasoning fears . . . regarding our food supply," such as developed in last year's cranberry incident, should be allayed by new Federal and State regulations, Dr. Merrill said.

Named to Honorary Post

SAVANNAH, GA. — Dr. Irvin M. Wofford, director of agronomy for Southern Nitrogen Co., has been elected president of the University of Georgia's Agricultural College Alumni Assn.

As president, Dr. Wofford will direct the state-wide association's continuing efforts to cooperate with and support the various schools of the College of Agriculture.

EXPORTS

Continued from page 1

come from Europe, especially West Germany, in 1960. Imports of urea have risen, but production and exports have declined, indicating competitive interrelationships similar to those for ammonium sulfate.

"In contrast to declining exports of nitrogenous fertilizers, sales abroad of phosphates and potash have been on the uptrend. Leading products were phosphate rock, up 50%, normal superphosphate, up 33%, and potassium chloride, up 57% from 1959. Phosphate rock and potassium chloride, which are mineral products, have found good markets in Canada and Japan. The Canadian potassium chloride situation should change, however, because production from Saskatchewan potash reserves may soon enter the market. In addition to Canada and Japan, phosphate rock from the United States competes with North African phosphates in various European countries, especially West Germany, Italy, and United Kingdom."

WILD OAT CONTROL—Chemical control of wild oats in wheat is indicated above. The light area represents check strip where no herbicide was applied and the wild oats have matured above the wheat. Darker areas show effective control of pest where Carbyne, post-emergence wild oat herbicide was applied. Field shown here was part of farm-testing program conducted during the past summer by Spencer Chemical Co., producer of the herbicide.

Croplife®
A BUSINESS PAPER FOR THE FARM CHEMICAL INDUSTRY

Scientists Question Zero Residue Tolerance in Milk

THE POLICY of maintaining a "zero tolerance" for pesticide residues in some food products, and especially milk, has caused much discussion in many areas, including nutritionists, chemists, and certainly the pesticide trade. Many of these people question the principles of such a policy, particularly in milk, in view of allowing tolerances for residues of pesticides in other major commodities.

The Food and Nutrition Board of the National Academy of Sciences, National Research Council, has expressed itself on the subject in a recent pronouncement. It states that while milk does constitute most of the diet of infants, young children and sometimes the aged and ill, "it does not necessarily follow that only zero tolerances are scientifically justified."

The group adds that FDA has established some 2,000 tolerances for residues of more than 100 pesticides, and most of these are greater than zero. They were established on the premise that no greater residue need remain if recommendations are followed, and that the amounts specified are safe. The board then recommends that "it is scientifically defensible to follow the same criteria in considering safe tolerances for pesticide residues in milk."

It adds: "The criterion of safety is, of course, of greatest importance, but residues of pesticides in milk are not per se more hazardous than residues of the same pesticides in other foods. The policy of zero tolerance hinges on the premises that, for certain groups, milk is the major item of food and that these groups may be more susceptible to toxic actions than are others in the population."

The conclusion reached by this scientific body is: "Zero tolerances for pesticide residues in milk . . . are not scientifically justified. Regulations would be scientifically sound if based on reasonable judgments assuring safety in the case of small residues that are unavoidable in milk even under the best production practices."

Of All Farm Supplies, Best Buy of All Is Fertilizers

DESPITE rises in prices of farm machinery and in nearly everything else purchased by the farmer to keep his "factory" going, the cost of fertilizers remains very low, considering the role it plays in farm production. Even not considering its importance, plant food is still inexpensive.

According to a New Mexico economist, W. Y. Fowler, prices paid by farmers for fertilizer have changed little from the spring of 1959. "They remain at about 6% above the 1947-49 average," he says. "The supply of basic fertilizer materials is adequate, although they will cost the manufacturer about $1.75 more per ton of average analysis fertilizer. But any increase in price of fertilizer to farmers will probably not exceed 1%," he notes.

Contrasted to this is the story of farm machinery, which in recent years has been increasing about 4% annually. Although this rate of increase slowed up a little during 1960, there is nothing to indicate that prices of such equipment will not continue to rise. Such a rise may be as much as 2% to 3%, according to Mr. Fowler.

Why, in the face of mountains of economic evidence, are so many farmers reluctant to purchase adequate amounts of plant food to help them to reduce their unit cost of production?

We wish we knew the entire answer, but there is this much in the way of a hint: Fertilizer use has increased in localities where concerted efforts have been made to merchandise plant food products through demonstration plots, sales efforts in outlets handling plant food and via strong local advertising. Not only are the fertilizer sales people happy with such results, but their customers also find themselves making unexpected gains.

Thus, we have the paradox of utilizing the products that have risen very little in price (plant food) to gain efficiency to offset increasing costs in other areas.

Each year more farmers than before find out these things, but the progress seems slow indeed. More sales and educational effort needs to be put forth to inform Mr. Farmer of his stake in adequate fertilization.

Talking Campaign Helps Pesticide Cause

ONE OF THE most effective ways to counteract public ill-feeling towards pesticides, and the industry in general, is to offer the services of speakers before various local groups. The good image thus created before people who might have had a rather hostile attitude toward anyone making or selling pesticides is thus greatly enhanced.

Arizona Fertilizer and Chemical Co., Phoenix, recently published in its attractive house magazine, "Crop Comments," a notice that it "Has Speakers . . . Will Talk." The offer was made to provide speakers for various groups such as farm bureaus, civic clubs, schools, PTA's and similar assemblies.

Since making the offer, the company reports that a considerable response has been felt, particularly for information on "chemicals in our foods."

Similar experiences have been reported from time to time by other companies who seek to improve their public relations in the community. The idea strikes us as a fine example of how industry people at the "grass roots" can carry out an effective campaign to offset the noise and smoke arising from those opposed to the use of pesticides and chemical fertilizers.

Pest Consumption Increases

THE VALUE of pest control in the form of insecticides, rodenticides and fungicides is pointed up graphically in a recent report of the Food and Agriculture Organization of United Nations. FAO estimates that rats, mice, insects and fungus plant diseases destroy enough food every year to feed 250 million people for a year on a daily ration of about two pounds of cereal products.

The report states further that in 1958, world production of all grains was 856 million metric tons, of which rodents, insects, and fungi "consumed" about 85.6 million tons. In the U.S., it is estimated that each rat feeding on stored grains, costs the farmer $6 a year.

Corn on Flute Toot

CORN PLANTS subjected to flute music in a recent experiment in India were reported to have grown more rapidly than did their fellow-stalks in control plots. The latter, which we suppose could be termed "unnoteworthy," struggled along without the charms of music while the favored plants grew 25% to 50% faster. The flute music was played half an hour a day for 20 days, apparently causing the serenaded plot to get in the groove, as it were.

Agronomists will no doubt argue over the efficacy of water and airs on the performance of plant growth, but probably the item of most significance is the fact that corn is one of the few plants that could be expected to react to the sound of music. After all, it has ears.

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INDUSTRY MEETINGS

Jan. 5-6—Arkansas Plant Food Conference, Arkansas Plant Food Educational Society and University of Arkansas cooperators, Little Rock, Ark.

Jan. 12—Clemson College Fertilizer Meeting for manufacturers, dealers and salesmen, Wade Hampton Hotel, Columbia, S.C.

Jan. 10-11—Texas Annual Fertilizer Conference, Texas Plant Food Educational Society and Texas A&M cooperating, College Station, Texas.

Jan. 23-27—Annual Purdue Pest Control Operators' Conference, Purdue Memorial Center, Lafayette, Ind.

Meeting Memos listed above are being listed in this department this week for the first time.

Dec. 12-14—North Central Weed Control Conference, Hotel Schroeder, Milwaukee, Wis. T. W. Tibbets, Department of Horticulture, University of Wisconsin, Madison, public relations committee.

Dec 13-14—Empire State Soil Fertility Assn. meeting, Ithaca, N.Y.

Dec. 14—Louisiana Fertilizer Conference, Louisiana Plant Food Educational Society and Louisiana State University cooperators, Baton Rouge, La.

Dec. 15-16—Indiana Fertilizer Conference, Memorial Center, Purdue University, Lafayette, Ind.

1961

Jan. 4-6—Northeastern Weed Control Conference, 15th annual meeting, New Yorker Hotel, New York City.

Jan. 5-6 — 15th Annual Wisconsin Pesticide Conference with Industry, University of Wisconsin, Madison, Wis.

Jan. 5-7 — Eleventh annual convention, Agricultural Aircraft Assn., Inc, Hotel El Dorado, Sacramento, Cal.

Jan. 6-7—Western Colorado Horticultural Society, Annual Meeting, Civic Auditorium, Grand Junction, Colo.

Jan. 10-11—Annual Winter Meeting, Ohio Pesticide Institute, Nationwide Inn, Columbus, Ohio.

Jan. 11-13—Agricultural Ammonia Institute, 10th annual convention, Memphis, Tenn.

Jan. 11-13 — 1961 Beltwide Cotton Production - Mechanization Conference, Poinsett Hotel, Greenville, S.C.

Jan. 12-13—Arizona Aerial Applicators Assn. 8th annual conference, The Wigwam, Litchfield Park, Ariz.

Jan. 17—Annual meeting of Georgia Plant Food Educational Society, Continuing Education Center, Athens, Ga.

Jan. 17-18—Third annual Agricultural Pesticide Conference, Purdue Memorial Center, Purdue University, Lafayette, Ind.

Jan. 17-18—Arkansas Plant Food Conference, Arkansas Plant Food Educational Society and University of Arkansas cooperators, Little Rock, Ark.

Jan. 17-18—Annual meeting, Georgia Plant Food Educational Society, Georgia Center for Continuing Education, Athens, Ga.

Jan. 18-19—Eighth Annual Western Agricultural Chemicals Assn. Northwest Conference, Benson Hotel, Portland, Ore.

Jan. 18-20 — 14th Annual Southern Weed Conference, Hotel Soreno, St. Petersburg, Fla.

Jan. 19-20—14th annual Southern Farm Forum, Roosevelt Hotel, New Orleans, La.

Jan. 23-25—Southeastern Branch, Entomological Society of America, 35th annual meeting, Admiral Semmes Hotel, Mobile, Ala.

Jan. 24—Discussion on current recommendations for the control of pests in Kentucky, Room 232, Agricultural Experiment Station, University of Kentucky, Lexington, Ky.

Jan. 25-26—Custom Spray Operators' Training School, 13th annual meeting, University of Illinois, Urbana.

Jan. 25-26—Symposium on "Effects of Environment on Crop Response to Fertilizers," Tennessee Valley Authority Fertilizer Development Center, Muscle Shoals, Ala.

Jan. 26-27 — Colorado Agricultural Chemicals Assn., annual meeting, Cosmopolitan Hotel, Denver, Colo.

Feb. 1-2—Soil Science Society of North Carolina Annual Meeting, Williams Hall, North Carolina State College, Raleigh, N.C.

Feb. 6-8—58th annual meeting, Association of Southern Agricultural Workers, Agronomy Section, King Edward Hotel, Jackson, Miss.

Feb. 9-10—Winter meeting, Fertilizer Section, National Safety Council, Tampa, Fla.

Feb. 14-15—Second Annual Aquatic Weed Control Society meeting, LaSalle Hotel, Chicago.

Feb. 15 — "Pesticides Review for Coastal Counties," sponsored by Western Agricultural Chemicals Assn. and California State Polytechnic College, on campus, San Luis Obispo, Cal.

Feb. 16-17 — Annual joint meeting, Midwest Industry - Agronomists, Edgewater Beach Hotel, Chicago.

March 13-15 — Spring meeting of Western Agricultural Chemicals Assn., Disneyland Hotel, Anaheim, Cal.

June 27-29—Twelfth Annual Fertilizer Conference of the Pacific Northwest, Marion Hotel, Salem, Ore. Chairman: B. R. Bertramson, agronomist, Washington State University, Pullman.

CALENDAR FOR 1960-61

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Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 20c per word; minimum charge $3.00. Situations wanted, 15c a word; $2.25 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 25c per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $12 per column inch.

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AGRICULTURAL - CHEMICAL SALESMAN, college graduate, 13 years' experience, desires position Midwest. Age 39, married, excellent references. Address Ad No. 6460, Croplife, Minneapolis 40, Minn.

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Excellent starting salary and company benefits with opportunity for advancement. Resumes submitted will be given prompt attention and will be maintained in confidence.

Address Ad No. 6259, Croplife, Minneapolis 40, Minn.

Armour Names Two

ATLANTA, GA.—Armour Agricultural Chemical Co. has announced the appointment of C. M. Einhorn as new products development manager, and Guilford S. Barteaux as specialty sales manager.

The appointments, both in the company's general office in Atlanta, were announced by W. E. Shelburne, president of the fertilizer-manufacturing firm.

BRUSH AND WEED KILLERS

KILL BRUSH at low cost with amazing R-H BRUSH RHAP. Will not injure grasses, grains; non poisonous. For free information write Reasor-Hill Corporation, Box 36CL, Jacksonville, Arkansas.

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SEED SHORT COURSE PLANNED

CORVALLIS, ORE. — Research in seed separation and discussions of plant management and marketing regulations are key topics for a two-day Seed Processors' Short Course slated at Oregon State College, Jan. 19-20. Jesse E. Harmond, OSC agricultural engineer and chairman of the short course, said the schedule calls for morning lecture sessions and afternoon demonstrations, plus a school on seed identification by the OSC official seed-testing laboratory.

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